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MODERN GEOGRAPHY

BOOK V

ASIA

MODERN GEOGRAPHY

A course in general and regional geography for schools.

By D. M. PREECE and H. R. B. WOOD, M.A.

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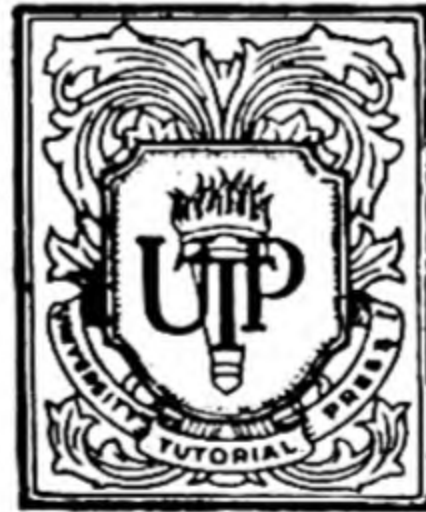
BOOK V

ASIA

BY

W. B. CORNISH, B.A.

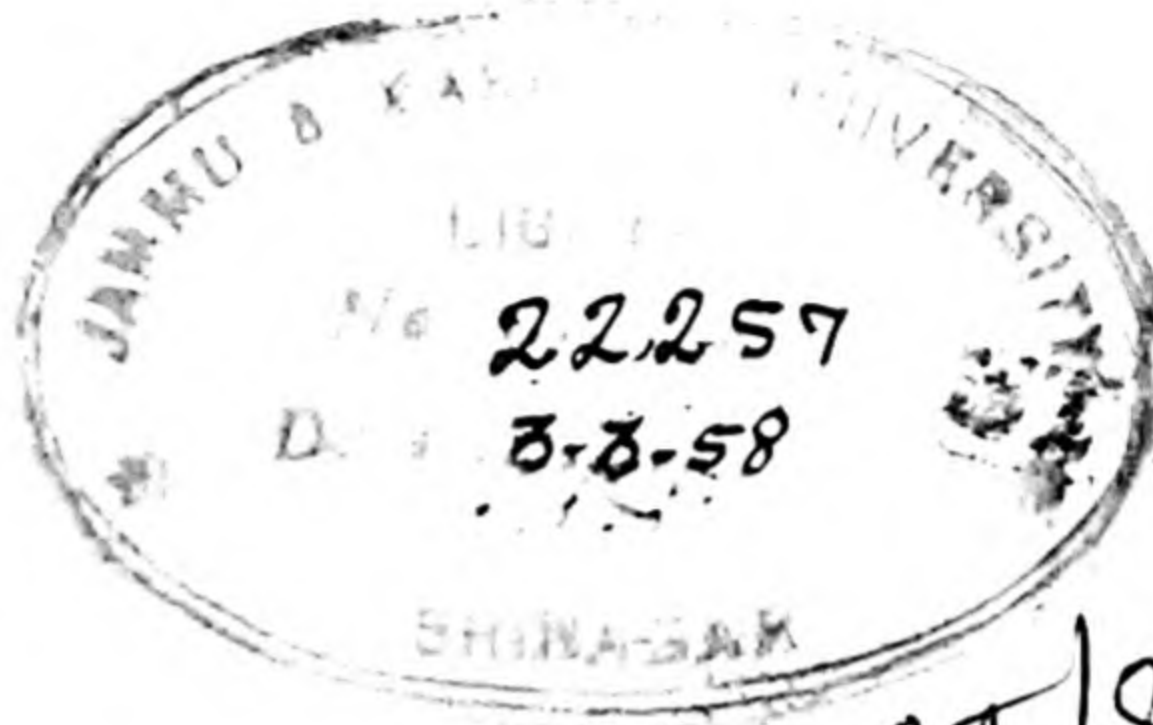
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PREFACE

Asia is the fifth of a series of six books, issued under the general title "Modern Geography," and has been written primarily to meet the needs of pupils preparing for the General Certificate of Education at the Ordinary Level and for other examinations of similar standard.

The first three chapters are devoted to descriptions of the more general features of the geography of the continent as a whole. In the remaining chapters emphasis is laid on the regional aspects, and an attempt has been made to keep a balance between physical, human, and economic considerations.

As in the preceding volumes, the numerous maps and pictures should prove to be a valuable and attractive feature of the book; many of them will provide material for discussion. I am greatly indebted to all those who have provided photographs; due acknowledgment is made below each illustration.

W. B. C.

NOTE TO THE SECOND EDITION

THE text of the present edition has been carefully revised throughout, and a number of alterations has been made to ensure that the book shall be as up to date as possible. The Dominions of India and Pakistan have now been treated in separate chapters, after a general chapter on the sub-continent as a whole.

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ASIA

CHAPTER I

RELIEF AND STRUCTURE: DRAINAGE

General Characteristics

The vast land-mass of Asia dwarfs the other continents in size, as a glance at any world map on an equal area projection will confirm. In latitude it extends from nearly 80° N. to nearly 10° S. (if we include the Indonesian Islands). In longitude it stretches from 28° E. to 165° W., a total of 167° , or nearly half-way round the globe. This means that when the people of Western Turkey are finishing their midday meal, those of Eastern Siberia are fast asleep at 1.30 a.m. on the next night.

It is obvious that over such an enormous area there must be great differences of relief, climate, and other geographical features, which in their turn have much affected the multifarious peoples so that there are also many different types of human society. Asia has indeed been called the "Continent of Contrasts"; here are a few examples which bear out the truth of this:—

1. It contains the highest parts of the earth's land-surface (Mt. Everest, 29,000 ft.) and the lowest (the Dead Sea Rift—1300 ft. below sea-level).

Off its shores, too, near the Philippine Islands is the deepest known part of the ocean floor (5900 fathoms).

2. It has the coldest place in the Northern Hemisphere in January and the hottest in July. Verkhoyansk in North-Eastern Siberia has a mean January temperature of -60° F. and several places in North-West India and the Persian Gulf area record a mean of over 95° F. in July. Incidentally, Verkhoyansk has the greatest known annual range of temperature, *i.e.* 120° F.
3. The greatest known annual rainfall in the world is that of Cherrapunji in Assam (432 in.), but Asia also contains the largest area in the world with less than 10 in. This area extends from the Red Sea to Mongolia.

4. The natural vegetation of Asia varies from the mosses and the lichens of the Arctic Tundra to the impenetrable tropical jungle of the south-east.
5. In the fertile alluvial lowlands of the monsoon lands there are the most densely peopled areas of the world. In the belt extending from India to China are packed about one-half of the world's population. Yet in the area of less than 10 in. rainfall and north of it to the Arctic shores is the most extensive area of sparse population.

Asia may also be called the "Continent with a Past and a Future." In Iraq and the lower Indus Valley there were civilisations contemporary with that of Ancient Egypt and of equal standard. Another developed somewhat later in China. All were flourishing when the peoples of North-West Europe were still savages. Then came a decline and the torch of progress passed to the West Europeans via Greece and Rome. There are many signs that the Giant of the East is awakening, prodded by the impact of the Western civilisations. The huge territories of the Soviets in Asia are being steadily developed; India has been organised by the British and has embarked upon nationhood within the British Commonwealth (Dominions of India and Pakistan); Burma has gained her independence; China is striving towards national unity. The Turks have become Westernised and this process is well under way in Persia. By Westernisation we do not mean merely the wearing of European dress and the adoption of the roman handwriting. It goes much further than that, and includes, *e.g.*, legal procedure, and the methods of government.

The transition from sleep to wakefulness is seldom completed without a period of restlessness. There is no continent with so many grave problems as those of Asia, not even Europe. In Palestine there is the seemingly insoluble problem of reconciling conflicting interests and viewpoints, in India the disputes between the two Dominions and the antagonism of Hindu and Moslem, in China the rivalries of the Nationalists and Communists. Ultimately, so great are the natural resources and so numerous the population, with such varied abilities, that the peoples of Asia cannot fail to

play a leading part in world affairs. If they, and particularly those of the south and east, rigidly adhere to the guiding principles of their great religions, it may well be for the world's good. We must remember that all the great religions originated in Asia, *i.e.* Christianity, Muhammadanism, Hinduism, Buddhism, Judaism, and the philosophy of Confucius.

As to the western boundary of Asia with Europe, this is usually taken to be the line of the Ural Mountains to their southern end, where it turns westwards along a line of low hills towards the Volga River, but before reaching the latter it again turns southwards to the Caspian, keeping parallel with the river and about 50 miles from it. Finally, in the area between the Caspian and the Black Seas, the crest of the Caucasus Mountains is normally regarded as the boundary. All this is very arbitrary as, apart from the Caucasus, there is no effective barrier between the continents. With the expansion of Russian government across Siberia and beyond the Caucasus it has become increasingly difficult to regard the boundary as a real one. Indeed, some of the authorities prefer to think of the U.S.S.R. as an Oriental rather than as an Occidental Power, basing this opinion upon the general outlook and mental make-up of the population of the European section.

Relief and Structure

Extending from the Ural Mountains in the west to the Lena River in the east is the greatest continuous lowland in the world—the Siberian Plain. The western half as far as the River Yenisei is a flat area composed mainly of recent sedimentary rocks, but beyond the Yenisei there is an eroded plateau formed of Palaeozoic rocks of a more resistant type. Structurally the whole of the lowland is a table of great solidity which has resisted folding, and the Primary rocks of Palaeozoic sedimentaries extend throughout the area, but in the western part they remain covered with glacial debris deposited during the Ice Age. The debris has been removed from the higher eastern part. The latter is a complex drainage area, the main and secondary watersheds forming ranges which rise to 3000 ft.

Pressing on this area to the west, south and south-east there is a great but broken crescent of ancient fold ranges including the Altai and Sayan Mountains, some of which reach 14,000 ft. To the south-east there are the lower and broken Yablonovoi and Stanovoi Ranges. Fringing the southern edges of these up-folds there is a series of depres-

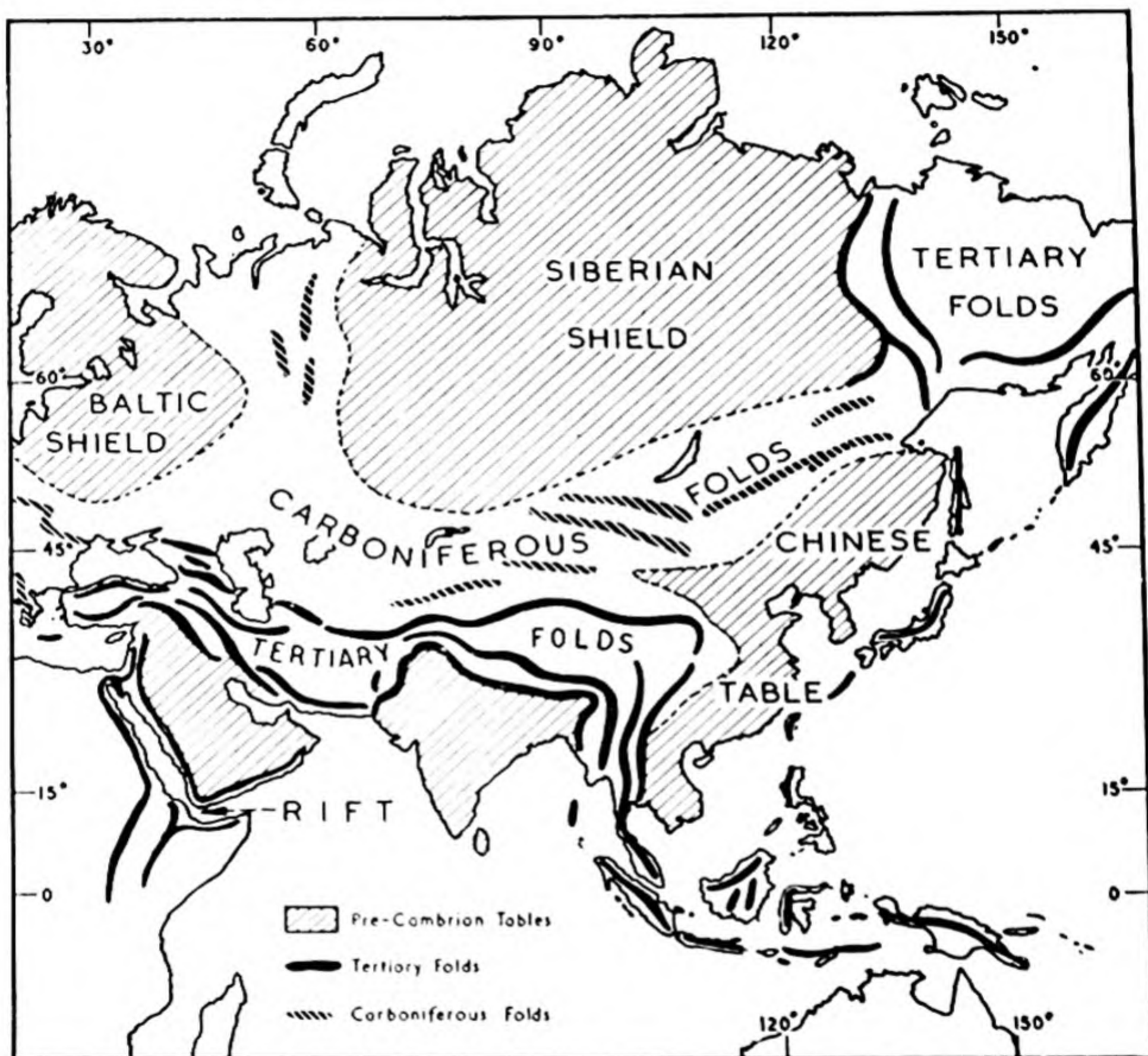


Fig. 1. ASIA—GEOLOGICAL STRUCTURE.

sions some of which form great basins partly flooded by such inland seas as the Northern Caspian, the Aral Sea, and Lake Balkash. It should be noted that the Khirghiz Steppe is structurally one of these lowlands and not an extension of the Siberian Plain. The Dzungarian Gate, a depression between the Altai and Tien Shan Ranges, has played a major part in determining the routes of Central Asia. All these

depressions are synclinal. Every wave consists of a trough and a crest. Fold ranges are the crests of earth waves and are said to be anti-clinal, whilst the corresponding troughs are synclinal. (See Book I, pp. 76-7, for an explanation of fold mountains.)

To the south-west of this fold system is another much younger one which provides the most impressive mountain scenery in the world. The folding occurred during the Tertiary, or third, period of geological history, *i.e.* about 50 million years ago, compared with the 400 million years ago of the older ones. It is an extension of the ranges which border the shores of North-West Africa and Southern Europe. The system enters Asia in the west of the Peninsula of Anatolia (Asia Minor) by two east-west ranges—the Pontic Mountains in the north and the Taurus Ranges in the south. These are continuations of the Greek Pindus Ranges to which they are linked by lines of islands which trace for us the submerged parts of chains. The two ranges enclose like pincers a great massif of ancient rock which forms the core of the peninsula. At their eastern end they converge in Armenia to form the knot of Mount Ararat, the central and culminating point of a volcanic area. It is a characteristic of fold ranges that volcanic outbursts and earthquakes are liable to occur along their flanks, no doubt because the very folding that gave rise to these ranges has weakened the crust and enabled the lava to burst through. Nowhere is this more probable than where two or more crests converge, as is the case with the Armenian area. That the Anatolian area is still in a very unsettled state is proved by the several disastrous earthquakes of recent years.

To the north-east of this volcanic mass there is a synclinal lowland mainly drained into the South Caspian, itself part of this syncline. Beyond this again are the Caucasus Mountains, a continuation of another European fold which, after forming the curving Carpathians and Transylvanian Alps, turn eastwards to the Black Sea as the Balkan Range. The fold system reappears as the mountains of Southern Crimea, and then as the much more majestic Caucasus which rise in Mount Elbruz to 18,000 ft. Where the fold ranges reach the Caspian they form the Apsheron Peninsula. The narrow part of the Caspian links the two synclines that we

have already mentioned, and then the fold recovers again in the Asiatic Balkans only to die away to a northward curving line of downs, regaining height in the Altai Mountains.

Returning to Mount Ararat, we find that two groups of ranges diverge to the east and south-east to enclose the next resistant mass, the plateau of Iran. The northern group forms the Elburz Mountains which skirt the southern shores of the Caspian and then run in a general eastwards direction through the Koh-i-Baba to the Hindu Kush. The southern group, the Zagros Mountains, which overlook Iraq and the Persian Gulf, continues along the northern shore of the Arabian Sea, sending a spur across the Strait of Hormuz to the mountains of Muscat in South-East Arabia. The main fold continues almost to the mouth of the Indus and then turns suddenly northwards, making an S-shaped bend at Quetta. Here again there has been a weakening of the earth's crust, as proved by the destruction of Quetta by earthquake. This is a normal type of event where fold ranges make sudden bends.

Flanking the Punjab the fold continues northwards as the Sulaiman Range. In the tangled region to the north-west of India there is a meeting place of ranges in the highest mountain knot of all, the Pamir Plateau or "Roof of the World" as the local people call it.

It is at this point that there begins the highest part of the earth's surface. From the Pamirs towards the north-east run the Tien Shan (24,000 ft.) and to the east—the Kun-lun (Mt. Godwin Austen, 28,000 ft.). These two systems partly enclose the Tarim Basin. To the south-east run the successive ranges of the Karakoram and the Himalayas (Mt. Everest, 29,000 ft.). Between these and the Kun-lun is the Tibetan Plateau which averages about 15,000 ft. and is crossed by yet more ranges, in places exceeding 25,000 ft. At the eastern end of the plateau relief becomes very complicated, for suddenly every one of these fold systems, each consisting of several ranges, turns southwards to form the parallel chains of Burma. The most westerly, the Arakan Yoma, is continued through the Andaman and Nicobar Islands to become the "backbones" of Sumatra and Java and parallel Metawa Isles off the south of Sumatra. The eastern Burmese Ranges are squeezed into the Malay Peninsula and then via

the "Tin Isles" of Banka and Biliton, swing north-eastwards through Borneo and the Philippines, Formosa and the Japanese Archipelago to the complex folded area of North-Eastern Siberia, east of the Lena River.

It is obvious that the presence of this huge obstacle across the entire width of the continent must have had a very important influence upon the development of the various major civilisations. It has meant that, throughout the whole of the north, human movements have been mainly along the latitudes, Russian from the west, Mongolian from the east. It has meant the development of the Indian civilisation in the south in its turn isolated from the Chinese in the east.

The remainder of the continent consists chiefly of more tables of resistant rock forming the tilted massifs of Arabia, the Indian Deccan, and parts of Indo-China and China. Between the two former of these and the Tertiary anticlines there are the great synclines of the Tigris-Euphrates Valley, the Persian Gulf, and the Indo-Gangetic Plain. The only other structural feature worthy of mention in this brief survey is the great Rift Valley which, commencing in Syria, forms the deep depressions of the Dead Sea and the Red Sea. It is thought that this great fissure in the Earth's surface was in some way caused by the great stress exerted upon the crust by the gigantic east-west earth waves.

Drainage

Disregarding minor details one may see that the waterways of Asia are divided into four groups, viz.:—

1. An area of the centre, which can be called the Heart-land, extending from Anatolia in the west to Manchuria in the east and penetrating well into Europe in the great Volga Basin. It is a region of inland drainage where the rivers either flow into lakes such as the Caspian and Aral Seas or, like the streams of the Tarim Basin, become swallowed up in sandy wastes. Apart from the Syr and Amu Darias which flow into the Aral Sea there are no rivers of major importance on the Asiatic side. The lakes are the outstanding feature of the drainage system and of these the Caspian is by far the greatest. As we have mentioned, it has been formed by the flooding of the lower parts of two synclines. The Caspian

is well below open sea-level and at its northern end there is a large area of land known as the Caspian Depression which is also below sea-level. The American geographer, the late Ellsworth Huntington, proved by his observation of the past shore-lines of the Caspian that its level has fluctuated, showing that there must have been climatic changes over its drainage

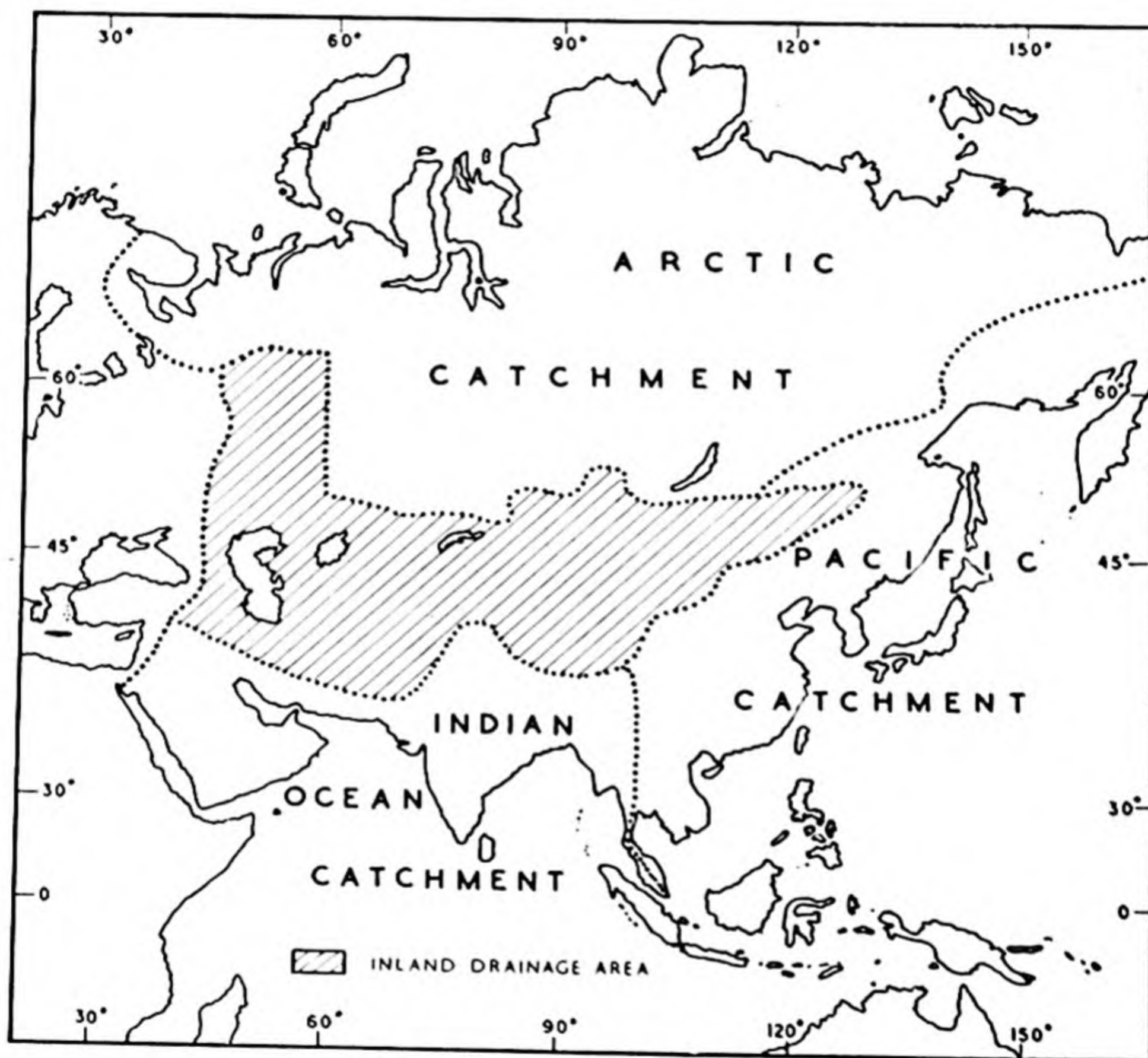


Fig. 2. CATCHMENT AREAS.

area, because the volume of an inland sea depends upon the amount of rain falling in the basins of its contributory rivers in relation to the volume of moisture evaporated over the whole of the basin. In wet cycles the amount received exceeds the amount evaporated so that the volume of the lake is increased and the shore-lines expand. In dry cycles evaporation exceeds precipitation, therefore the lake shrinks. In

Persia and the high depressions of the Tarim Basin, and in the Gobi Desert, most of the areas shown as lakes are really salt pools, for they are fed only by streams which flow to them seasonally after the melting of the winter snows on the surrounding heights.

2. The Indian Ocean drainage area extends from the headwaters of the Tigris and the Euphrates to the Malay Peninsula. The most important streams are the Indus and the Ganges-Brahmaputra, the two last named sharing the same delta. One interesting fact emerges from a study of the courses of these streams. The Himalayas, greatest of all mountain systems, do not form a major watershed, for the Indus and one of its chief tributaries, the Sutlej, and the Sanpo, headstream of the Brahmaputra, all rise north of the ranges and break through them by narrow gorges into the Indo-Gangetic Plain. The three rivers have their sources very close to each other and can be compared with the Rhone, the Rhine, and the Aar in Southern Switzerland. It is probable that both drainage systems may be accounted for in the same way. There was once a river flowing in a single longitudinal valley, in the Asiatic case from the east to west via the Amu Daria to the Aral Sea. Short, very swift rivers on the opposite slopes of the mountains, eroding their courses very steeply, undercut the higher valley and so "captured" the longitudinal stream in three places. There are signs that other captures will one day take place, for several tributaries of the Ganges appear to be making gaps in the Himalayas.

There are numerous examples of river-capture (or beheading) in this drainage area, *e.g.* there used to be another Indus tributary rising to the east of the present series, but its headwaters were captured by the Jumna so that, now, deprived of its flood waters, the beheaded stream loses itself in the sands of the Thar Desert. Then again, in Burma, the Irrawaddy had as its original source the Chindwin. Flowing parallel to the Chindwin and separated from it by the Pegu Yoma, central range of Burma, was the less energetic Sittang. A powerful tributary of the old Irrawaddy cut a gap in the Pegu Yoma and drained off the upper part of the Sittang near the site of Mandalay.

3. The Pacific drainage area is a relatively small one, the outstanding rivers being the Chinese Yangtse and Hwang-Ho. The watershed between this drainage area and the Indian Ocean area is very finely drawn, for in South-East Tibet there

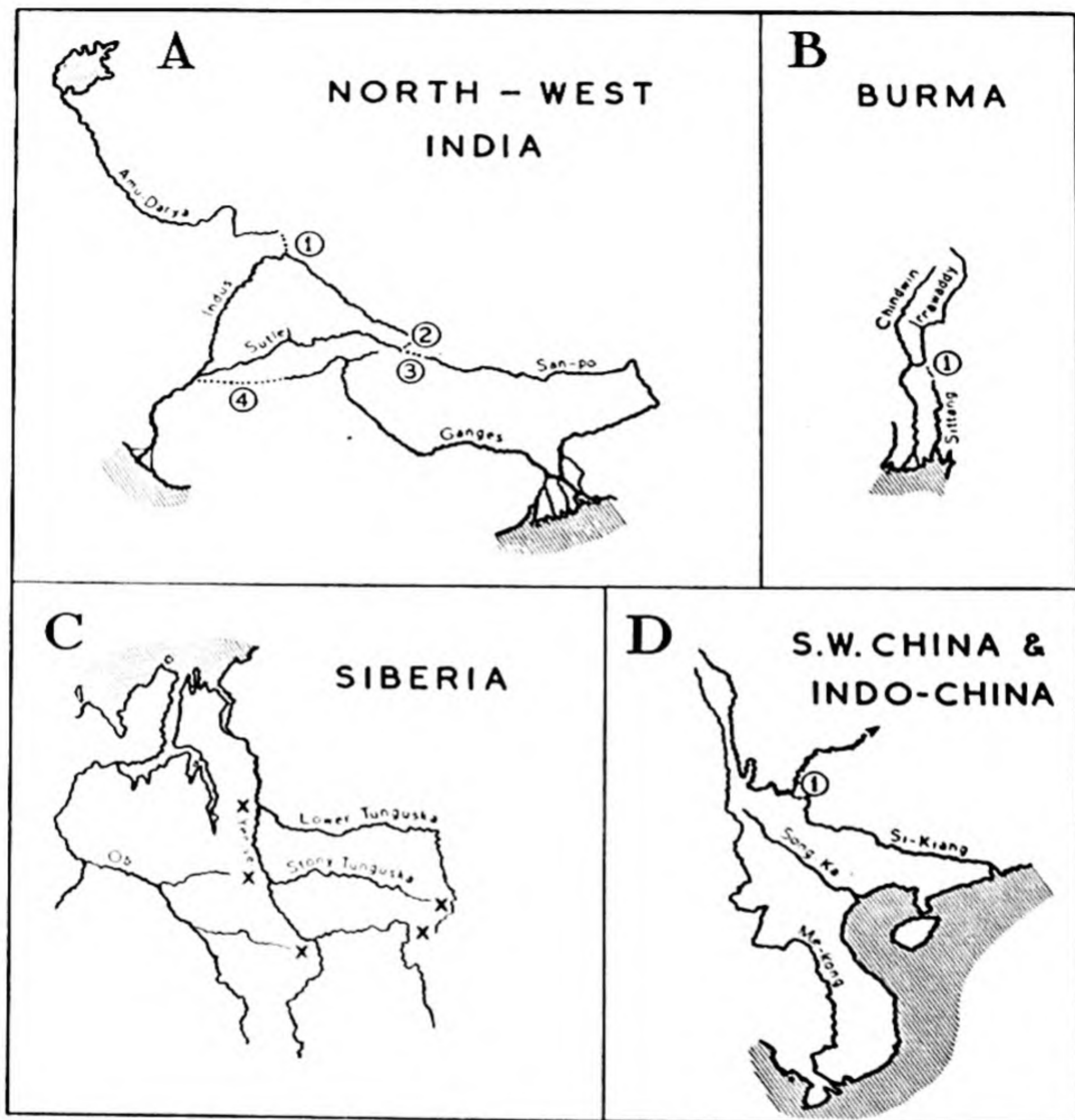


Fig. 3. SOME EXAMPLES OF RIVER-CAPTURE IN ASIA. In A, B, and D numbers represent the former drainage lines. In C points of river-capture are marked "x."

is a succession of rivers flowing towards the south-east, and those flowing to the Pacific are divided from the others by a narrow mountain ridge which ultimately becomes the backbone of Malaya. Here again we could find plenty of examples of river-capture but we must content ourselves with pointing

out the excellent one of the beheading of the Sikiang by the Yangtse. Note, too, that the Song-ka of Tonking appears to be about to rob the Mekong.

4. The largest drainage or catchment area is that feeding the Arctic. The three principal rivers are the Ob, Yenisei, and Lena, all rising in the northern fold area, but the former two flow across the Quaternary rocks of the western section, whilst the last named flows across the ancient rocks of the eastern. They all have one feature in common—they rise in warmer southerly latitudes and flow to the Arctic. Therefore in spring the upper courses thaw before the lower and are fed by the melting of the winter snows. This results in extensive flooding in the lower basins followed by more flooding in the autumn when the lower courses freeze first. An examination of the map shows that the West Siberian rivers have similar features to those of Northern Europe in that they zig-zag across the plain in a general S.E.-N.W. direction with well-developed east-west tributaries. In both areas the great ice-sheets deposited accumulations of debris, called moraines, which stretch roughly from east to west.

When a warmer climate returned at the close of the Glacial Age and the rivers began to flow again, they were forced into parallel east-west courses along the southern edges of the moraines. The Siberian ones then drained into the great Gulf of Ob. Next, swift streams rising on the northern edges of the moraines undercut the lower east-west rivers, resulting in another type of river-capture. Fig. 3C shows how the present Lower and Middle Yenisei have played a big part in this process. Note particularly how the three right bank tributaries, the Tunguskas, must have once continued westwards to the Ob basin until they were diverted. A further capture seems imminent by a tributary of the Ob in the foothills of the Sayan Mountains, and the Lower Tunguska has robbed its fellow, the Stony Tunguska, of its headwaters.

These rivers rank amongst the longest in the world, but are of little importance because they flow into the Arctic. Taking the main streams only, the Ob measures over 2000 miles, the Yenisei nearly 2000 miles, and the Lena nearly 2500 miles. In the extreme north-east there is a series of shorter, swifter streams draining the Chersk and the Anadyr Mountains.

Coast Lines

The coasts of the three oceans bordering the continent each represents a very different type. That of the Indian Ocean describes two great bays, the Arabian Sea and the Bay of Bengal, with two large gulfs projecting from the former, the Red Sea-Gulf of Aden and the Persian Gulf. The former is part of the Great Rift Valley and the latter the flooded part of the Mesopotamian Syncline. Note how the main lines of direction of the Red Sea, Mesopotamia, the west coast of India, the Arakan Range, and Malaya turn generally from north-west to south-east, whilst there are indications of minor direction lines at right angles in the coast of Arabia, the north-east coast of India, and the Indus Valley. This parallelism of surface features is common in areas where there has been much faulting and fracturing of the crust, *e.g.* the Scottish Highlands. Note, too, that the phenomenon is continued along the east coast of Africa.

Turning to the Pacific, we find a similar north-west to south-east trend (in, *e.g.*, the Malayan coast, Indo-China, the north-east coast of China, the Korean Peninsula, Sakhalin, and Kamchatka) with minor trends at right angles (*e.g.* Cochin China, S.E. China, and the coast of Honshiu, Japan). This feature is overshadowed in the Pacific by the "festoons" of islands where archipelagoes appear to hang from the mainland, *e.g.* the Japanese group. On examination, however, it is clear that these festoons are themselves part of the same north-west to south-east and north-east to south-west structure lines.

Compared with the other two, the Arctic coast has few outstanding features. We may note, however, that in the west the rivers flow into long estuaries and in the east they form deltas. This difference is largely caused by the different characters of the respective basins. The rivers of the west wander over relatively flat areas so that their rate of flow is slow. Therefore, they drop most of the load derived from the upper courses before they reach the sea. Those of the west are much swifter so that they bring the silt right down to their mouths. In addition the tidal scour in the Western Arctic is much more vigorous than that of the eastern part.

CHAPTER II

CLIMATE: NATURAL REGIONS

It is, of course, impossible to talk about "the climate of Asia" owing to the vast area involved. Before we proceed to divide the land-mass into climate sub-divisions there are certain controlling factors which must be understood because they influence, in varying degrees, the climatic phenomena of the different parts.

Firstly, there is the vast area to be considered. In winter the interior becomes extremely cold owing to the great distance from the sea. The whole of the area north of a line from Anatolia through Northern Persia and along the edge of the Himalayas to Central China as far south as the Yangtse basin has average temperatures below freezing point in January, and much of it is nearly 32° below zero. This means that the air becomes very dense and the atmospheric pressure is high. There is a large area over Mongolia where the average pressure in January exceeds 30.6 in., and the whole of Asia with the exception of Southern India, Indo-China, and the East Indies, a narrow belt along the Arctic shore and the peninsulas and islands of the north-east, has an average January pressure of over 30 in. As the winter progresses so the cold becomes more intense and the density of the air increases, *i.e.* the pressure becomes higher. Throughout the winter the air is literally pressed outwards by other air accumulating above it, so that there is a general movement from the interior to the coastlands—westwards to the Atlantic, southwards to the Indian, and south-eastwards to the Pacific Oceans where the winter pressure is low owing to the relatively higher temperatures. This out-flowing dry air causes Asia to be rainless over the greater part in winter. Pressure differences are highest from January onwards so that the wind-force is greatest in the second half of the winter.

In summer, on the other hand, the air becomes very hot. Most of the continent has average temperatures above 64° F., except for a belt along the north and an "island" in the Central Highlands where the temperature falls below 16° on the plateau of Tibet. There are large areas bordering the Persian

Gulf and in Northern India where the July temperatures average more than 80° F., nearly 95° in Iraq, and 96° in the north-west of India. This heat causes the air to expand and rise and there is an area of low pressure extending over the whole of the continent with the lowest centre in the Punjab

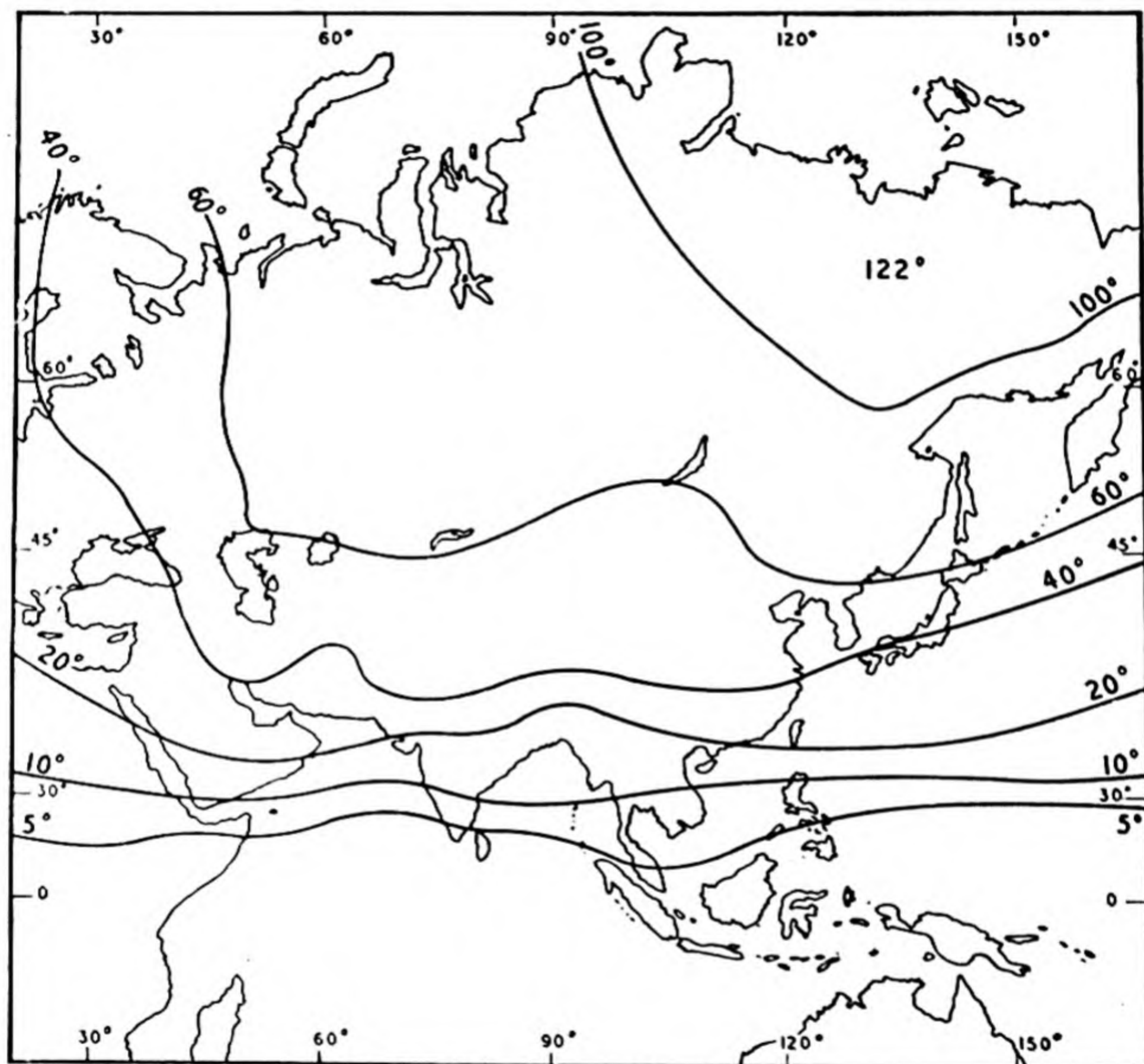


Fig. 4. ANNUAL RANGE OF TEMPERATURE.

Note the increase in range towards the north-east. Verkhoyansk, Northern winter "Pole of Cold," is also the place with the greatest known range of temperature (122° F.).

where it is less than 29.4 in. This leads to an inflow of air from the whole of the surrounding areas of higher pressure so that most of the continent has its main rainfall in summer.

The second major controlling factor is the relief barrier which extends throughout the width of the continent.

Together with the effect of great distance from the sea it causes large areas of the interior to have a very low rainfall. The effect of the barrier is seen in the distribution of temperature map showing actual temperatures. In January the southern edge of the barrier roughly coincides with the 48° isotherm, *i.e.* the boundary between warm and cool winters.

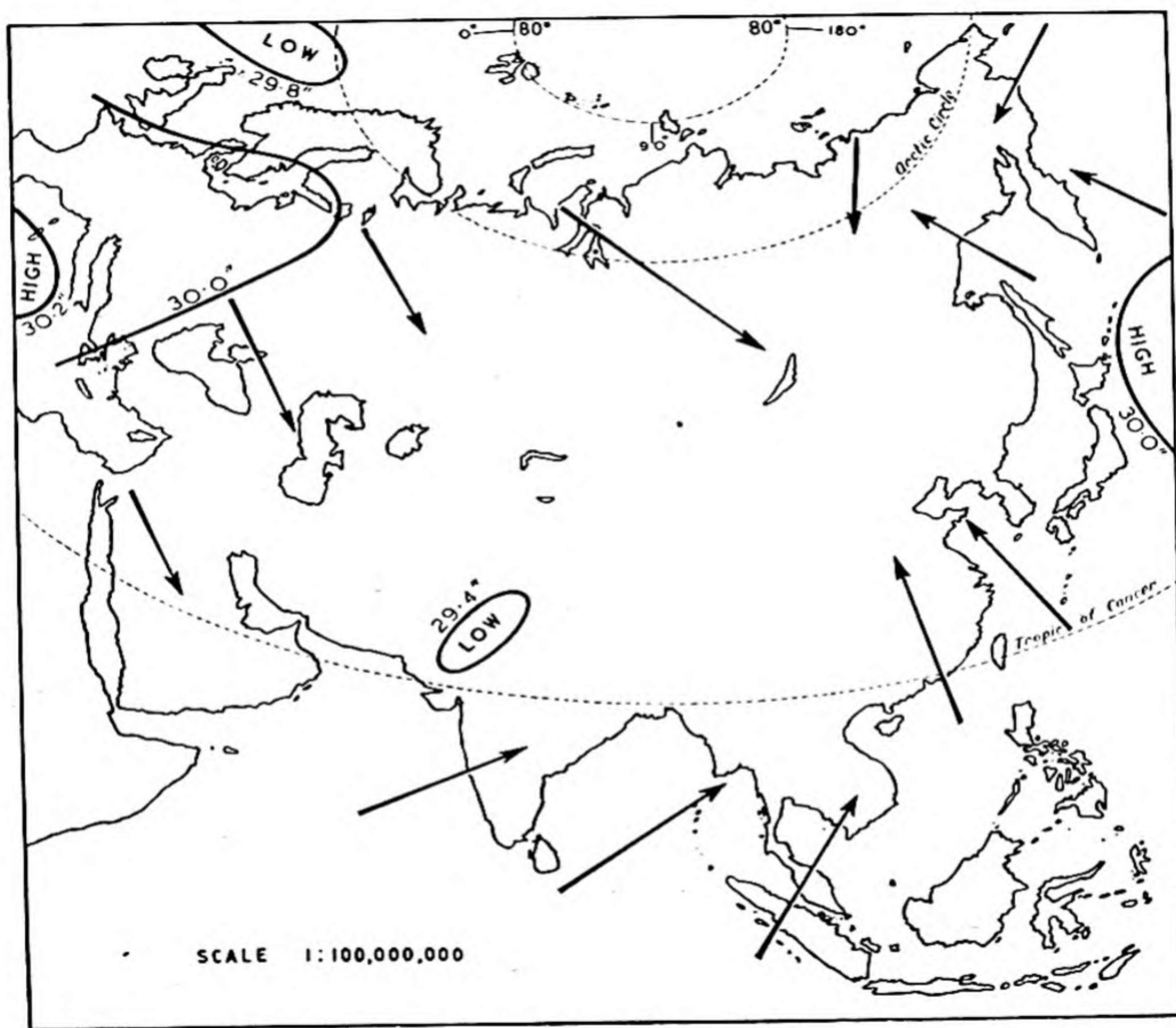


Fig. 5. WINDS AND PRESSURE—JULY.

A third control is the open nature of the European margin from the Arctic to the Black Sea, for the Urals form a very ineffective barrier. Note also how the Baltic and Mediterranean-Black Sea "inlets" allow Atlantic influences to penetrate much further eastwards than would have been the case had the European coast been unindented. The former has its greatest effect in the summer when the low pressure

of Central Asia allows depressions to cross the continent. This accounts for the belt of fairly heavy rainfall shown on the summer rainfall map as extending across the Siberian Plain. In winter the intense high pressure over the land-mass prohibits any penetration from the west. Indeed, there is

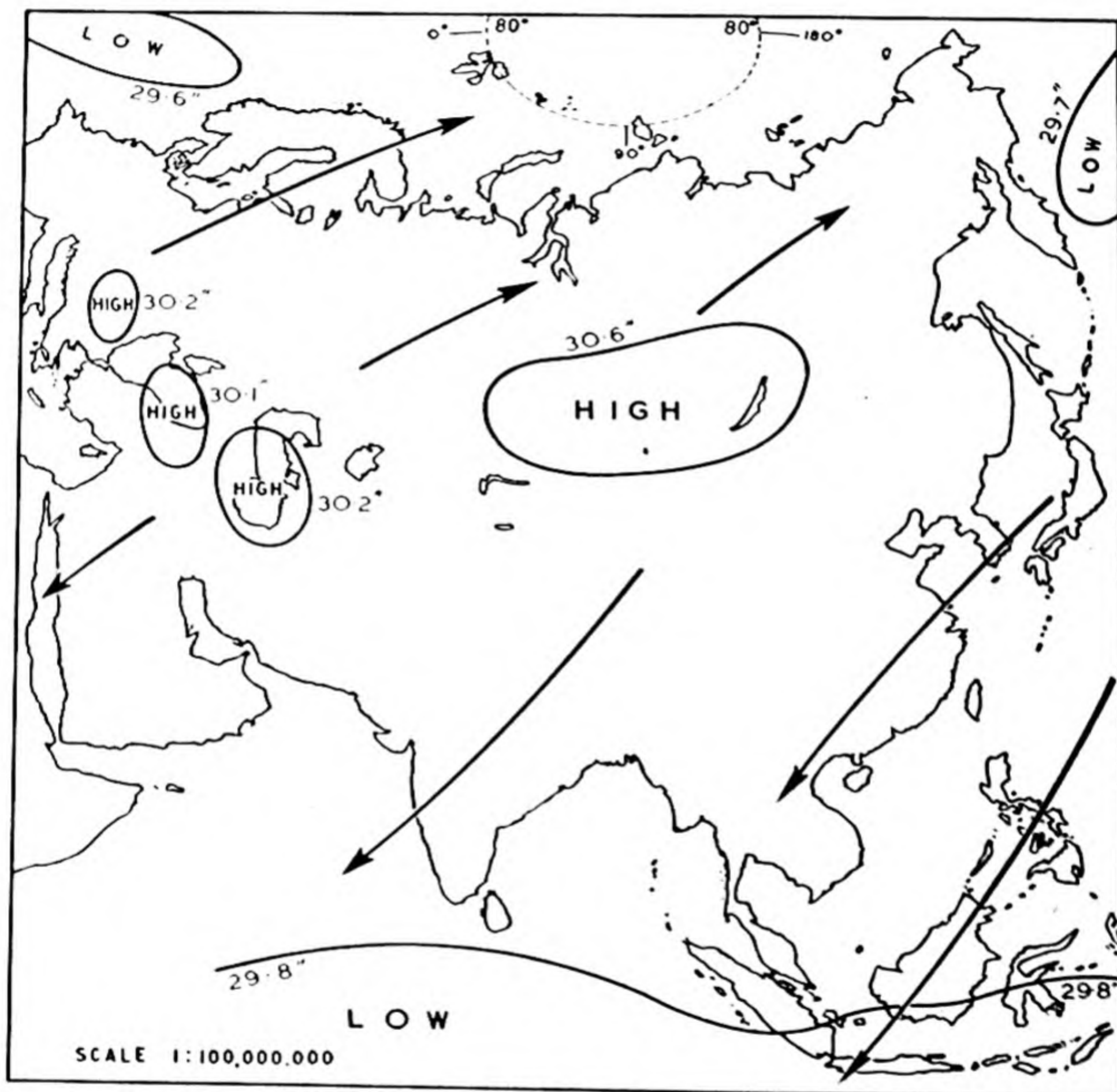
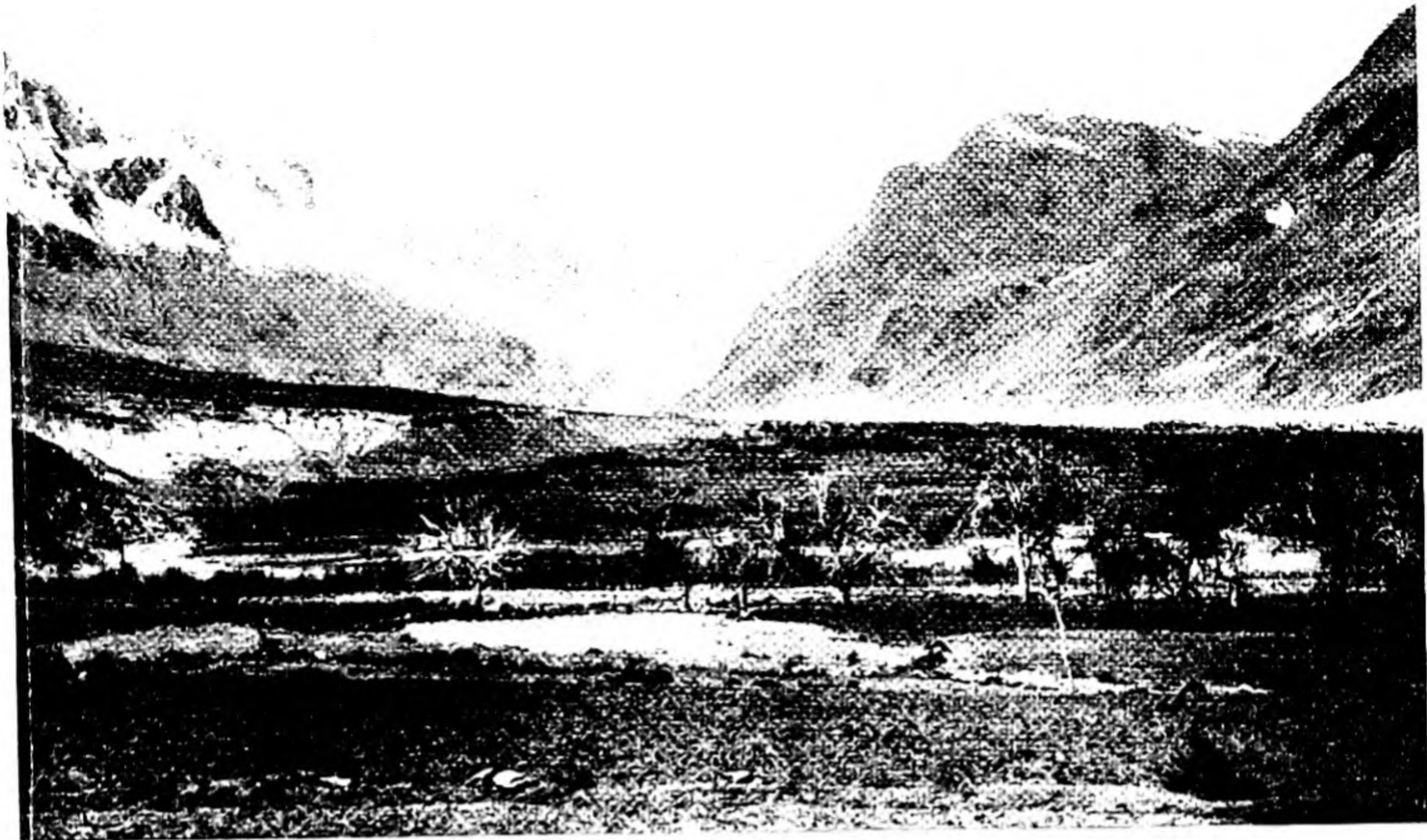


Fig. 6. WINDS AND PRESSURE—JANUARY.

often a strong outflow in the opposite direction which accounts for the bitterly cold easterly winds which sometimes reach our own shores. They are particularly liable to occur in the second half of the winter when the temperatures are at their lowest in Central Asia. At this season it is the Mediterranean "inlet" which has the greater effect on Asiatic



Above: KASHMIR. THE GILGIT VALLEY, SHOWING NANGA PARBAT (26,629 FT.)
VIEWED FROM THE WEST. (*Exclusive News Agency.*)

Below: MOUNT EVEREST. (*Keystone.*)



Above: THE JORDAN RIFT-VALLEY, SHOWING RIVER MEANDERS. (Exclusive News Agency.)

Below: SIBERIAN TUNDRA, WITH HERD OF REINDEER. (Exclusive News Agency.)

climate for it is then that Atlantic depressions follow more southerly routes. Some of them enter and pass right across the Mediterranean bringing rain to an area extending from Anatolia to Iran and from Palestine to the Caspian.

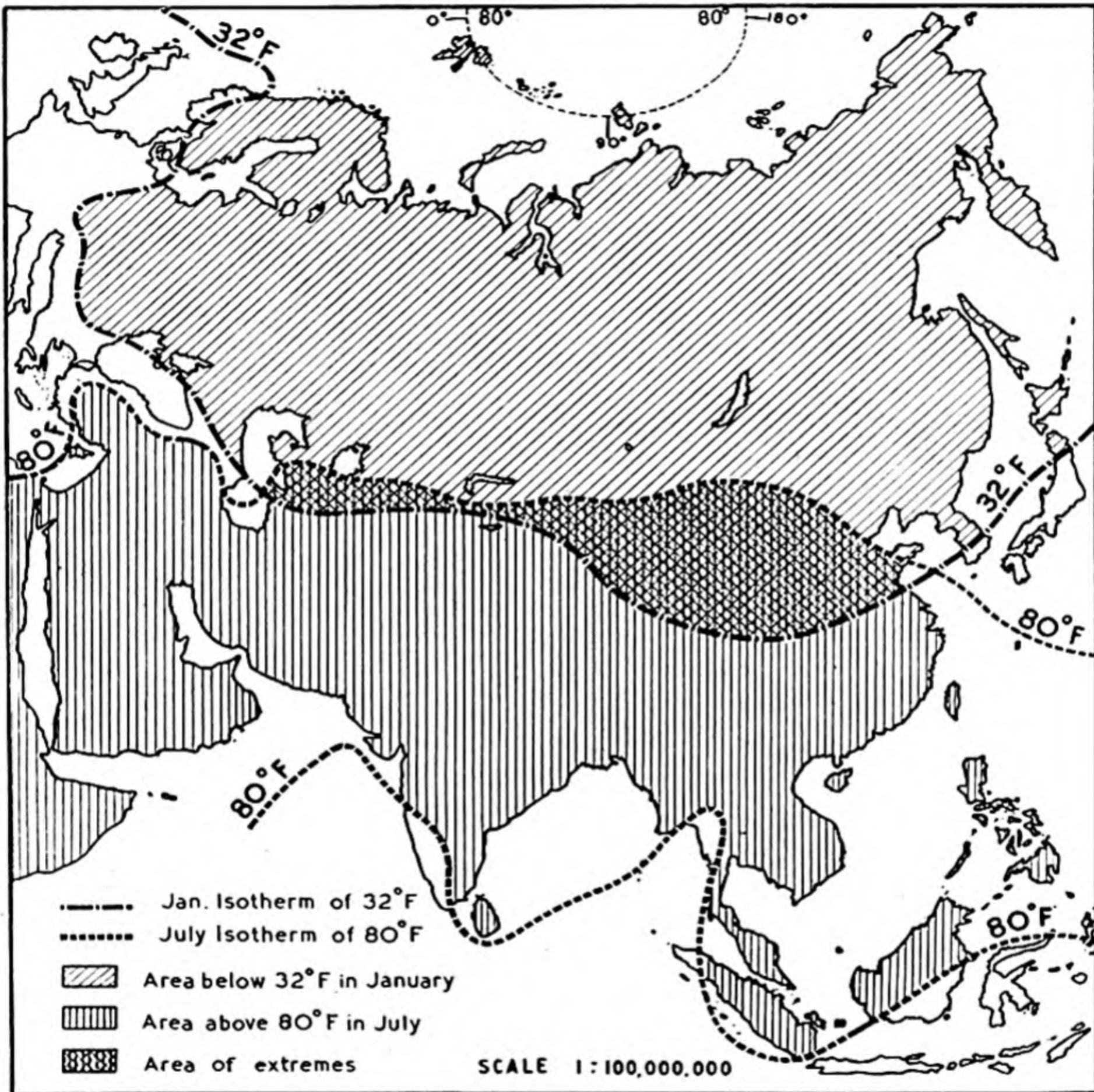


Fig. 7. THE BELTS OF SUMMER HEAT AND OF WINTER COLD.

THE NATURAL REGIONS OF ASIA

A natural, or geographical, region may be defined as a part of the earth's surface that has a relief, climate, and natural vegetation differing from those of the areas bordering it. It must be remembered that these regions are purely arbitrary and this particularly applies to the boundaries.

Normally on a journey across a continent one would pass very gradually from one region to another.

Bearing these points in mind, let us apply them to Asia. We may divide the continent into 13 major natural regions. The table on pp. 23-6 shows the climatic statistics for places

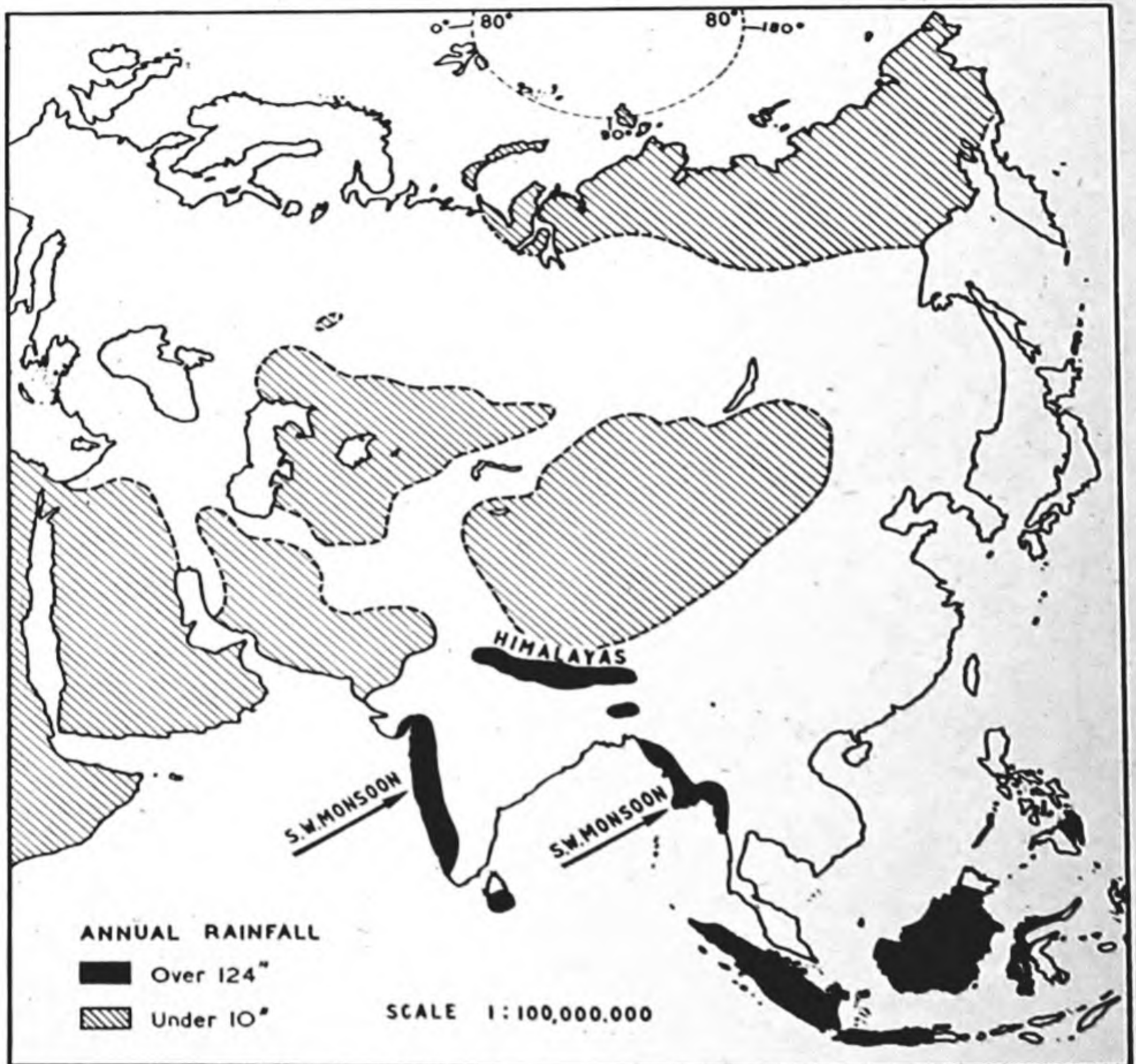


Fig. 8. MEAN ANNUAL RAINFALL.

Note the effect of the Himalaya barrier on the rainfall of opposite sides.

in each, except in the case of the Tundra, for which none is available. Here, then, is a list of the regions together with the type to which each belongs, so that it may be compared with similar regions in other continents already studied.

(1) MALAYA, THE EAST INDIES, CEYLON, AND THE EXTREME SOUTH-EAST OF INDIA. EQUATORIAL LOWLAND TYPE.

Similar regions: Amazon lowlands, Congo Basin, and Guinea coastlands; north-west coast plain of South America; coastal lowlands of Central East Africa.

(2) A BELT EXTENDING FROM THE WEST COAST OF INDIA THROUGH BURMA, SIAM, AND INDO-CHINA TO THE EXTREME SOUTH OF CHINA. MONSOON TYPE. Similar regions:

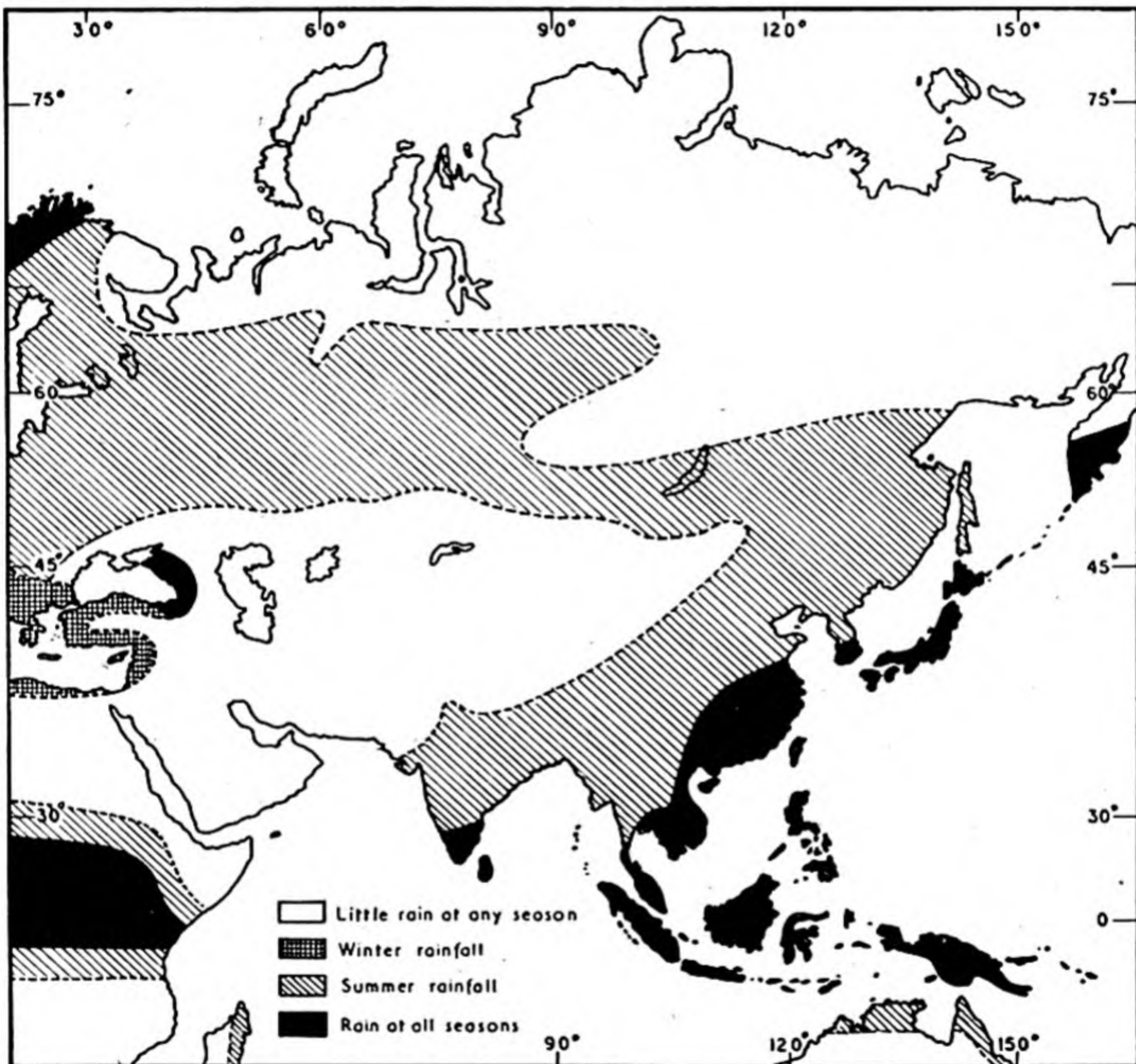


Fig. 9. SEASONAL RAINFALL.

Note the influence of prevailing westerly winds across the centre of the continent in summer.

Abyssinia; Madagascar and the opposite shores of Africa; Liberia and Sierra Leone; the north-east corner of Brazil and the northern and north-eastern coastlands of Australia. Some authorities include Central America, the Gulf Plain of U.S.A., the West Indies, and the northern coastlands of South America in this type.

(3) ARABIAN PENINSULA AND THE LOWER INDUS BASIN. HOT DESERT TYPE. Similar regions: the North African deserts, the Kalahari, the Atacama, the West Australian, and the North American deserts.

(4) THE WESTERN SHORES OF ANATOLIA, SYRIA, PALESTINE, AND THE MESOPOTAMIAN LOWLAND. EAST MEDITERRANEAN TYPE. Similar regions: the Valley of California, the Santiago Valley of Chile, the Kalgoorlie area of West Australia.

(5) IRAN AND CENTRAL ANATOLIA. IRAN TYPE. Similar regions: Plateau of the Shotts (Algeria); the Meseta (Spain); the Basin of the Great Salt Lake (U.S.A.).

(6) TURKISTAN. TURAN TYPE. Similar regions: the high plains east of the Rockies; North-West Argentina; the South African Veldt; the Murray-Darling Basin.

(7) SOUTH-WESTERN SIBERIA, CENTRAL MANCHURIA. PRAIRIE OR CONTINENTAL TYPE. Similar regions: the American Prairies, the Plate Lowlands; the Black Earth Region of the Ukraine.

(8) TIBET. TIBET TYPE. Similar region: the Bolivian Plateau.

(9) THE GOBI DESERT; THE TARIM BASIN. TEMPERATE DESERT TYPE. Similar region: Patagonia.

(10) THE SIBERIAN FOREST. NORTHERN FOREST TYPE. Similar regions: the Alaskan and Canadian Forest belt; the Scandinavian and North Russian Forests.

(11) NORTHERN CHINA AND NORTHERN JAPAN, EASTERN SIBERIA. ST. LAWRENCE TYPE. Similar region: the north-east of North America (Newfoundland, the Great Lakes, St. Lawrence Valley, Maritime Provinces, New England).

(12) SOUTH-EASTERN CHINA, SOUTHERN JAPAN. CHINA TYPE. Similar regions: South-Eastern U.S.A., South-Eastern Brazil, coastal plains of New South Wales and Queensland.

(13) THE SIBERIAN TUNDRA. TUNDRA TYPE. Similar regions: the continuation into Northern Europe, the Tundra of Arctic Canada, Labrador, and West Greenland.

Let us now examine each of these regions in more detail to study the climatic characteristics and the natural vegetation.

See 2257-58
37-58

(1) MALAYA, THE EAST INDIES, CEYLON, SOUTH-EAST OF INDIA. *Climate*.—As the figures for Singapore show, there is very little difference in temperature throughout the year. Note that the average maximum is reached in May just after the period of overhead sun for the latitude. From its near-

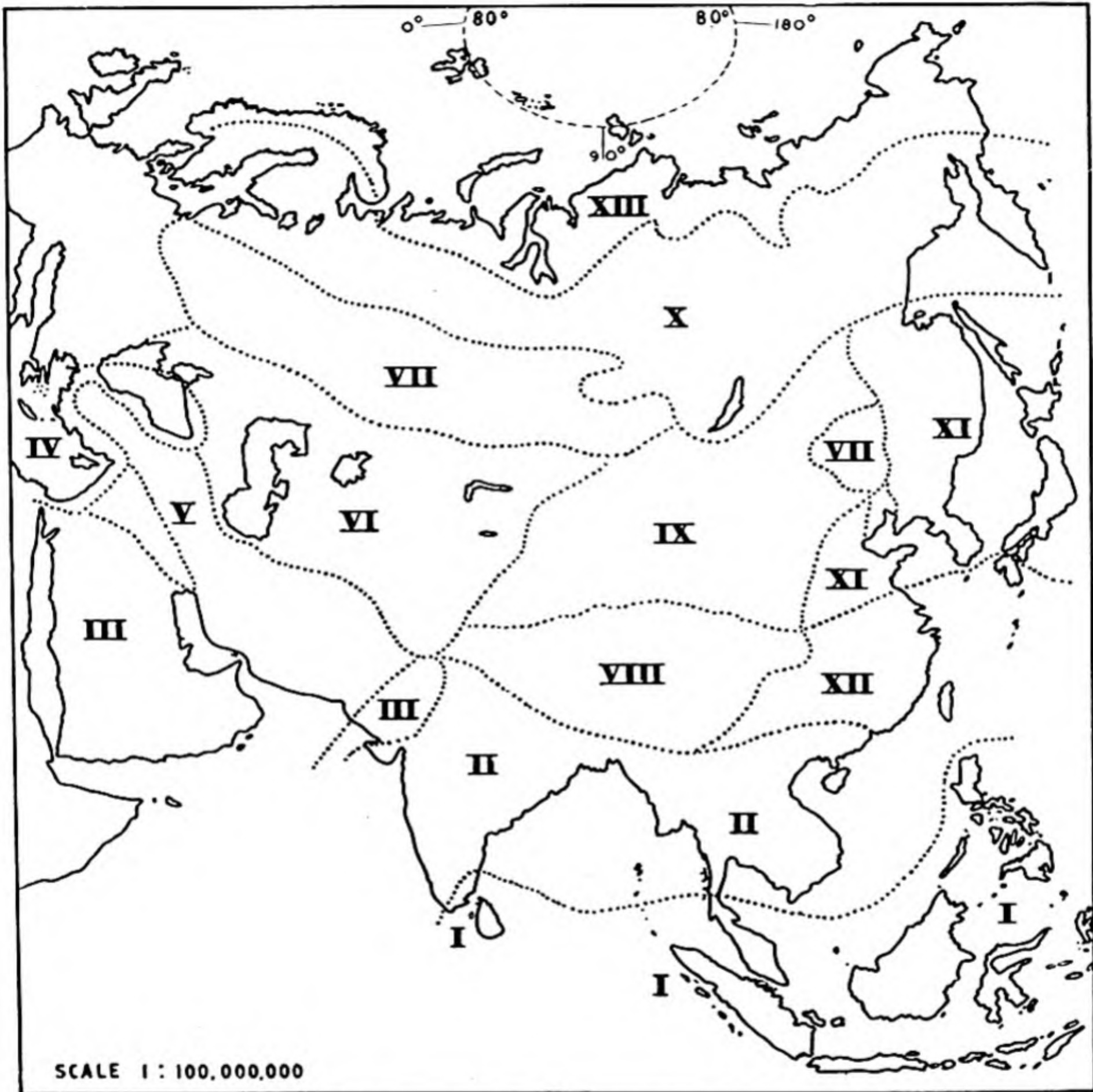


Fig. 10. THE NATURAL REGIONS OF ASIA. See pp. 17-21.

Equatorial position it is obvious that the whole of the region has a vertical, or almost vertical, midday sun. True, a place on the Equator has the noon-sun at an angle of $23\frac{1}{2}^{\circ}$ from the vertical or a place on latitude 8° N. has it at an angle of $31\frac{1}{2}^{\circ}$ from the vertical at its midwinter solstice. Compare this, however, with Southern England where, even when the sun

it at its highest, the angle is $27\frac{1}{2}^{\circ}$ and in midwinter it is $74\frac{1}{2}^{\circ}$ from the vertical.

Although there is a very small annual range of temperature, there is a fairly high diurnal one. Thus Singapore has an average diurnal range of 14° F. and this is typical of the region. The atmospheric pressure remains low throughout the year owing to the heat. At Singapore the average is just about 29.8 in., which is also the figure for Jakarta (Batavia). At Colombo there is a slight variation, the pressure rising to nearly 29.9 in. in January and falling to just below 29.8 in. at midsummer.

Because of the constant low pressure the air rises. It is saturated with moisture and, on cooling, releases most of it so that throughout the year there is a heavy rainfall. The mean annual rainfall at Singapore is 109 in. In no month does it fall below 6 in., but there is a definite maximum of over 10 in. in December. At Colombo there is an annual rainfall of 87.2 in. with double maxima in May and October of about 13.5 in. In February the rainfall decreases to 2 in. and in August to 3 in. This seasonal fluctuation is a characteristic of places in the Equatorial lowlands. In the case of Colombo, which is on latitude $7^{\circ} 1' \text{ N.}$, it occurs just after the two periods of overhead sun. Batavia has a rainfall of 70.8 in. with a maximum of 12.5 in. in February and a minimum of 2 in. in August. Note that it is situated on latitude $6^{\circ} 13' \text{ South}$ and that the maximum occurs not long after the sun has passed overhead on its apparent northward journey whilst the minimum is at the season when the angle of midday sun is nearly at its lowest. At Sandakan in Borneo there is an annual rainfall of 120 in., the wettest month being January (18 in.) and the driest, April (3.5 in.). Throughout the region, in common with other Equatorial lowlands, there is usually a severe thunderstorm in mid-afternoon.

All the places quoted are at sea-level but the area contains many mountain ranges and plateaux. On these, of course, the rainfall is very much heavier and the temperature lower, e.g. on the highlands of Java and Sumatra there are quite extensive areas where the average temperatures remain below 64° throughout the year.

CLIMATIC STATISTICS

Station	Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Ann. Rain.	Range of Temp.	Height above S.L.	Type
1 Singapore	78	79	80	81	82	81	81	81	80	80	79	79		4	S.L.	1
	Temp.												109.3			
	Rain.	8.5	6.1	6.9	7.2	6.7	6.8	8.5	7.1	8.2	10.0	10.4				
2 Jakarta (Batavia)	78	78	79	79	80	79	79	79	80	80	79	78		2	S.L.	2
	Temp.												70.9			
	Rain.	13.0	13.6	4.8	3.7	3.6	2.6	1.3	2.6	4.1	5.0	8.7				
3 Colombo	79	80	82	83	82	81	81	81	81	80	80	80		4	S.L.	3
	Temp.												84.5			
	Rain.	3.5	2.1	4.5	11.4	7.8	4.5	3.5	4.8	14.5	12.0	5.4				
4 Sandakan	80	80	80	81	82	83	83	83	83	82	81	80		3	S.L.	4
	Temp.												114.0			
	Rain.	18.0	9.0	3.5	6.0	7.0	6.5	8.0	9.0	10.0	11.5	17.5				
5 Bombay	75	75	78	82	85	82	80	79	79	81	79	76		7	S.L.	5
	Temp.												79.4			
	Rain.	0.1	0.0	0.1	0.7	20.6	27.3	16.0	11.8	2.4	0.4	0.0				
6 Lahore	53	57	69	81	89	93	89	87	85	76	63	55		40	702'	6
	Temp.												20.5			
	Rain.	0.9	1.1	0.5	0.8	1.9	6.7	4.9	2.1	0.4	0.0	0.3				
7 Delhi	58	62	74	86	92	92	86	84	84	78	68	51		41	650'	7
	Temp.												27.7			
	Rain.	1.0	0.6	0.7	0.3	3.2	8.4	7.4	4.4	0.4	0.1	0.4				

All the temperatures are actual, i.e. have not been reduced to Mean Sea-Level.

CLIMATIC STATISTICS—continued

Station	Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Ann. Rain.	Range of Temp.	Height above S.L.	Type
8 Calcutta	Temp.	65	70	79	85	86	84	83	82	83	80	72	65	21	S.L.	8
	Rain.	0.4	1.1	1.4	2.0	5.0	11.2	12.1	11.5	9.0	4.3	0.5	0.2	58.7		
9 Rangoon	Temp.	77	79	84	87	84	81	80	80	81	82	80	81	10	S.L.	9 Monsoon
	Rain.	0.2	0.2	0.3	1.4	12.1	18.4	21.5	19.7	15.4	7.3	2.8	0.3	99.6		
10 Hong Kong	Temp.	60	58	63	70	77	81	82	81	80	76	69	63	24	S.L.	10
	Rain.	1.4	1.7	2.9	5.6	12.7	16.4	12.4	14.3	9.5	4.5	1.5	1.0	83.9		
11 Aden	Temp.	76	77	79	81	86	89	88	86	87	82	79	77	13	S.L.	11 Hot Desert
	Rain.	0.3	0.2	0.7	0.3	0.2	0.0	0.0	0.1	0.2	0.0	0.1	0.1	2.3		
12 Jacobabad	Temp.	57	62	74	85	94	98	95	92	89	79	67	59	41	350'	12
	Rain.	0.3	0.3	0.2	0.2	0.2	0.1	1.2	1.2	0.2	0.0	0.1	0.2	4.1		
13 Smyrna (Izmir)	Temp.	46	48	51	59	69	76	81	82	75	66	58	52	36	S.L.	13 East Medi- terranean
	Rain.	2.8	2.6	3.2	1.1	0.9	0.4	0.0	0.4	0.5	0.8	3.4	3.7	19.8		
14 Damascus	Temp.	55	55	58	65	73	80	80	80	78	73	65	58	25	2900'	14
	Rain.	2.0	2.0	2.0	1.0	0.0	0.0	0.0	0.0	0.0	1.0	2.0	4.0	14.0		

All the temperatures are actual, i.e. have not been reduced to Mean Sea-Level.

CLIMATIC STATISTICS—continued

Station	Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Ann. Rain.	Range of Temp.	Height above S.L.	Type
15 Teheran	Temp. 34	42	48	61	71	80	85	83	77	66	51	42		51	3900'	Iran
	Rain. 1.2	0.9	2.4	0.9	0.4	0.0	0.4	0.0	0.1	0.1	1.2	1.3	8.9			
16 Astrakhan	Temp. 19	21	32	48	64	73	77	74	63	50	37	26		58	-30'	Turan
	Rain. 0.5	0.3	0.4	0.5	0.7	0.7	0.5	0.5	0.5	0.4	0.4	0.5	5.9			
17 Tomsk	Temp. -3	1	14	30	45	59	67	60	48	32	11	1		70	230'	Prairie
	Rain. 1.1	0.8	0.8	0.7	1.5	2.7	2.9	2.3	1.4	2.3	1.4	1.9	19.8			
18 Barnaul	Temp. -4	0	12	33	52	66	68	62	50	35	15	5		72	500'	Prairie
	Rain. 0.8	0.5	0.5	0.6	1.3	1.7	2.2	1.8	1.2	1.3	1.1	1.0	14.0			
19 Semipalatinsk	Temp. 0	2	14	38	57	68	72	67	55	38	20	6		72	600'	Prairie
	Rain. 0.5	0.2	0.4	0.4	0.8	0.9	1.1	0.4	0.6	0.6	0.6	0.8	7.3			
20 Mukden	Temp. 8	14	30	47	60	71	77	75	61	48	29	14		69	450'	Prairie
	Rain. 0.2	0.2	0.6	1.0	2.4	3.2	6.7	4.3	2.6	1.7	0.5	0.2	23.5			
21 Leh	Temp. 17	19	31	43	50	58	63	61	54	43	32	22		46	11,000'	Tibet
	Rain. 0.3	0.4	0.2	0.2	0.3	0.2	0.5	0.5	0.2	0.2	0.0	0.2	3.2			

All the temperatures are actual, i.e. have not been reduced to Mean Sea-Level.

CLIMATIC STATISTICS—continued

Station	Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Ann. Rain.	Range of Temp.	Height above S.L.	Type
22 Kashgar	Temp.	22	34	47	61	70	77	80	76	69	56	40	26	58	4200'	Temperate Desert
	Rain.	0.3	0.0	0.2	0.2	0.8	0.4	0.3	0.7	0.3	0.0	0.0	0.2	3.5		
23 Verkho- yansk	Temp.	-59	-47	-24	7	35	54	60	57	47	34	22	11	119	650'	Northern Forest
	Rain.	0.2	0.1	0.0	0.1	0.2	0.5	1.2	0.9	0.2	0.2	0.2	0.2	3.9		
24 Irkutsk	Temp.	-5	1	17	35	48	59	65	60	48	33	13	1	70	1500'	
	Rain.	0.6	0.5	0.4	0.6	1.2	2.3	2.9	2.4	1.6	0.7	0.6	0.8	14.5		
25 Vladivos- tok	Temp.	5	12	26	39	49	57	66	69	61	49	30	14	64	S.L.	25
	Rain.	0.1	0.2	0.3	1.2	1.3	1.5	2.2	3.5	2.4	1.6	0.5	0.2	14.7		
26 Tokyo	Temp.	37	38	44	54	61	69	75	78	72	61	50	41	41	S.L.	St. Lawrence
	Rain.	2.0	2.6	4.3	5.3	5.9	6.3	5.6	4.6	7.5	7.2	4.3	2.2	57.9		
27 Shanghai	Temp.	38	39	46	56	65	73	80	80	73	63	52	42	42	S.L.	China
	Rain.	2.2	2.3	3.4	3.8	3.7	6.5	5.5	5.9	4.7	3.2	1.7	1.2	44.0		

All the temperatures are actual, i.e. have not been reduced to Mean Sea-Level.

Natural Vegetation.—A hot humid atmosphere is, as all gardeners know, the most favourable for plant growth. Combine this with an extremely fertile soil and you have the “optimum” conditions. There are many types of soil in these Equatorial areas—alluvial or volcanic in the main—and they all contain a considerable amount of humus. This is inevitable in a forested region because of the steady accumulation of decayed vegetable matter—fallen leaves, dead trees, etc. Heat, moisture, bacteria, and insects contribute to extreme rapidity of decay. As a result there is not only a luxuriance of vegetation unparalleled in any other type of region in the world (except in certain monsoon forests where the rainfall is heavy) but also a tremendous variety of types of plant life. This variety is an economic disadvantage because valuable timber rarely appears in “stands” but is scattered about amongst masses of valueless material. There are usually three “layers” of trees. First, there are the giants of over 100 ft., then come those of medium height (60 ft.-80 ft.), and finally the shorter ones of about 30 ft. They are bound together by cable-like creepers (lianas) and the intervening spaces are filled with masses of undergrowth. Germination and growth are so rapid that a track cleared with great difficulty will disappear in a very short time unless constant work is put into maintaining it. Owing to the lack of seasonal climatic variations, there is no special seed or harvest time. Trees bear flowers, unripened and ripened seeds, at the same time and all the time.

These conditions apply to the coastal lowlands, but as the mountains are climbed the forest remains thick owing to the heavy rainfall. This mountain rain forest has not such a variety of types because as the temperature decreases with altitude nature becomes more selective.

(2) THE MONSOON LANDS. *Climate.*—Over the vast area which we have included under this heading there is, of course, a great variety of local conditions. There are, however, certain major characteristics which are common to the whole of the area. The word “Monsun” means “seasonal wind” and monsoon regions are those which have exactly opposite winds in summer to those which blow in winter. They occur where land-masses in temperate latitudes border tropical seas,

e.g. over Asia the pressure is very high in winter, whereas over the warmer tropical sea the relatively high temperatures cause low pressure. (So the air flows from land to sea and the monsoon lands experience drought. In summer, on the other hand, the very high temperatures over North-West India cause the development of a powerful low pressure system, but over the Indian Ocean the relatively cool temperatures give rise to high pressure. As a result air flows strongly from sea to land and the monsoon lands have their rainfall.) It is important to understand that the change does not come suddenly. At the equinoxes there are two short seasons with very unsettled conditions, especially in coastal areas where land and sea influences are most in conflict. It is then, especially at the autumn equinox, that the very violent cyclonic storms, typhoons, sweep across the Bay of Bengal and the South China Sea.

The variety of conditions which we have mentioned is connected with the amount of rainfall and the winter temperatures. In India, for example, the mean annual rainfall of the monsoon area varies from about 10 in. in the north-west to 430 in. on the southern slopes of the Khasi Hills of Assam. As to winter temperatures, they range from 50° F. in the Punjab to over 75° in Southern Burma. /

(For our specimen climatic station we have selected Bombay. Note especially the sudden jump in rainfall from 0·7 in. in May to 20·6 in. in June. Other places with similar conditions are: Rangoon with 99·6 in. of rain, 21·5 in. in July; Calcutta with 58·7 in., July 12·1 in.; Hong Kong, 83·4 in., 16·4 in. in June. In the lower rainfall group we have Delhi, annual rainfall 27·7 in., 8·4 in. in July; Lahore, 20·5 in., 6·7 in. in July; Mandalay, 35·1 in., 5·7 in. in May; Hyderabad (Deccan), 35·6 in., 7 in. in September. At the other extreme there is Cherrapunji (Assam) with 432 in., 99·6 in. in July, the wettest place in the world, and Mangalore (South-West India), 125·7 in., 37 in. in July.,

Natural Vegetation.—As the monsoon lands are so densely populated a natural vegetation map does not convey a very accurate idea of the existing conditions. It only attempts to show what the vegetation would be if man had not felled much of the forest and ploughed up the grassland. With

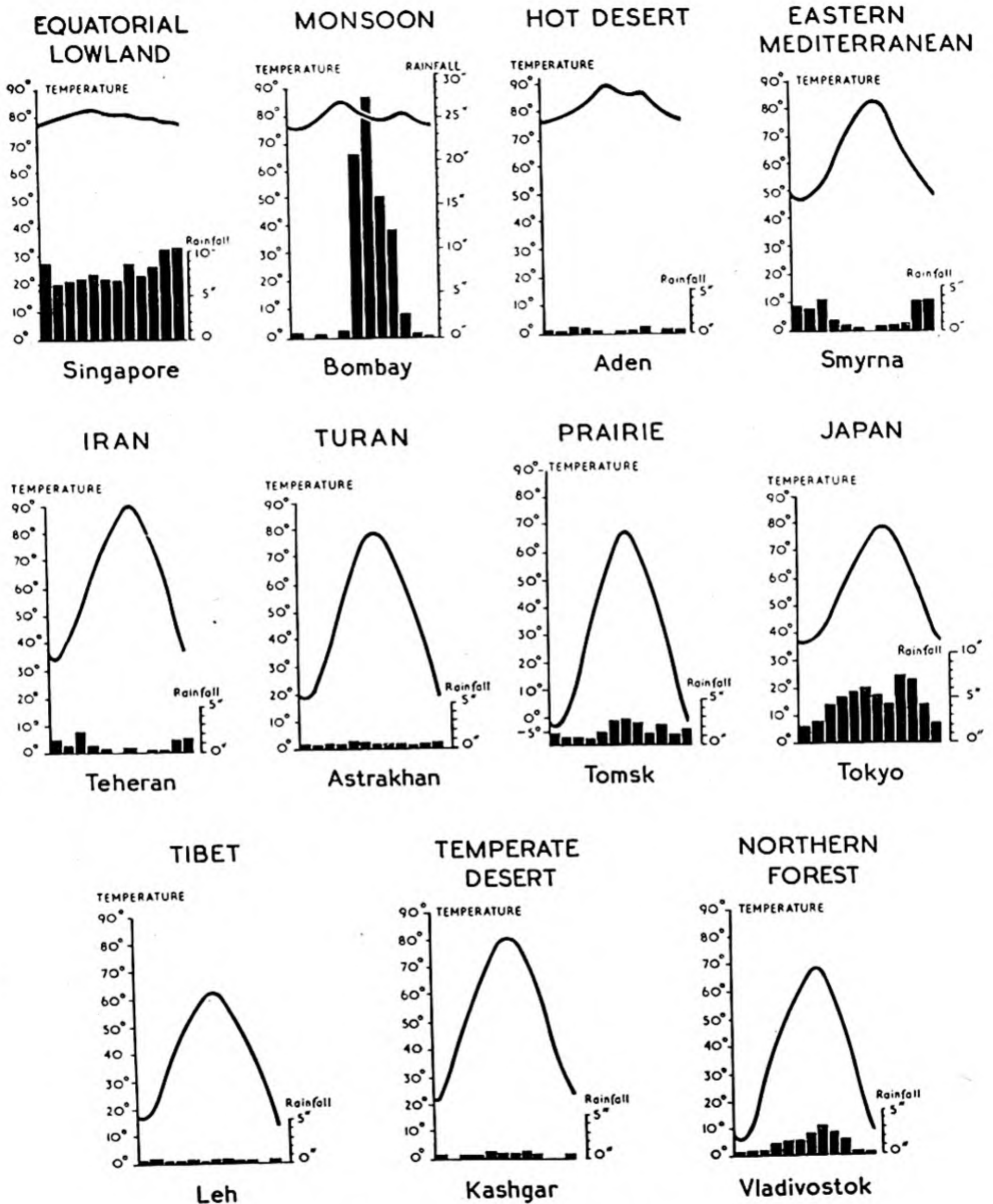


Fig. 11. CLIMATIC GRAPHS.

such great variations of soil, altitude, and above all, of rainfall, it is not possible to speak of a monsoon vegetation except in so far as to say that the greater part of the area is naturally covered with forest of one kind or another. Thus the lower Ganges Basin and the coastlands of Burma and Indo-China have a dense jungle very similar to that of the Equatorial lowlands, with much mangrove swamp along the shores. Very little of the original forest is left in the first-named area for most of it has been cleared for rice-fields. In Bengal trees are even being planted as future fuel supplies to replace cow-dung now so much needed as manure after many years of cultivation. The North-Eastern Deccan and most of the Ganges Basin together with the interiors of Burma and Indo-China have a much more open type of forest, a very characteristic tree of the lowlands being teak. On the uplands of the Deccan the banyan is quite common. It is able to withstand the winter drought by reason of its branches taking root in search of moisture. It is like the baobab of the Sudan, a similar summer rainfall region. In North-Western India, the Central and Southern Deccan, the rain-shadow valleys of Burma and Indo-China, there is scrubland or semi-desert vegetation with drought-resisting acacias and tamarisks. (On the high mountain ranges, of course, there are belts of vegetation in accordance with altitude, ranging from dense rain forest on the lower slopes, through forests of gaily flowering rhododendrons, camelias, and magnolias (followed by pine forests and then by meadows of Alpine mosses and lichens culminating in ice-desert.)

(3) THE OLD WORLD DESERT. *Climate*.—The area of the Lower Indus Basin, most of which is composed of the Thar Desert, has in summer a very low average atmospheric pressure. Indeed, in July it is as low as 29.4 in. which is the lowest average pressure for any part of the world at any time of the year. Low pressure means rising air, so that from all the surrounding regions of land and sea alike, other surface air moves in from high pressure belts to take its place. In its turn this new supply of air becomes heated and rises, and so the process goes on. Owing to the rotation of the earth, this inward moving air does not flow straight towards the low pressure centre, but makes its way gradually in ever-narrowing

circles in an anti-clockwise direction. This is an illustration of Ferrel's Law which states that all moving fluids are deflected towards the right in the northern hemisphere and to the left in the southern. The explanation for this may be put simply as follows: the earth makes one revolution around its own axis in twenty-four hours, but, as the earth is spherical, a point nearer the Equator has to travel through space at a much faster rate than those in higher latitudes where the circumferences of the parallels of latitude are less. To take definite examples—the circumference of the earth at the Equator is 24,500 miles, whereas at the Tropic it is about 18,000 miles. At the former, a point travels through space at just over 1000 miles an hour, but at the latter a point travels at about 750 miles an hour. Now when a particle of air or water begins to move northwards in the northern hemisphere it passes from more rapidly moving to more slowly moving latitudes, but it tends itself to retain the speed of its original latitudes. Therefore, instead of moving along a meridian of longitude, it turns gradually to the right. It will be seen that if this process continues, the particle will tend to describe a circle, for in the second half of its journey it will begin to turn back towards the Equator and so travel towards latitudes moving more rapidly. Its deflection will still be towards the right. In the case of the Thar low pressure centre, our particle of air is affected by two influences—the rotation of the earth and the centre of low pressure. The latter tries to pull it in, but the former deflects it to the right all the time, so that it moves in an anti-clockwise circle. By the time that the flow of air reaches the low pressure centre it has passed over much land and has therefore lost its moisture. This accounts for the summer drought of the Thar. As Arabia is to the west of the low pressure, its winds are northerly, so that they have blown across much of the land-mass and are also dry. In the winter there is high pressure over much of the Asiatic land-mass so that the air flows from land to sea and the desert area shares in the general drought.

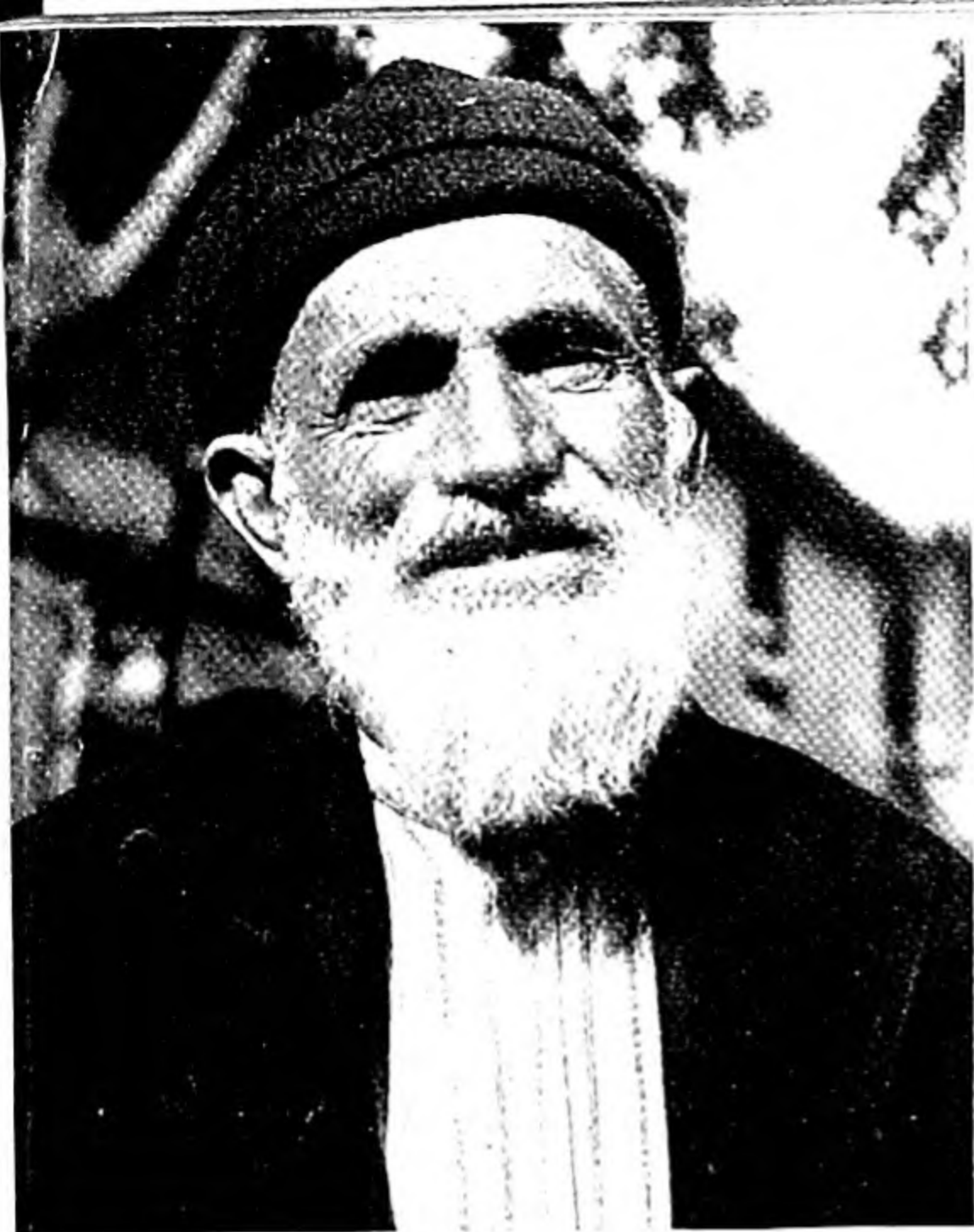
An examination of the figures for Aden reveals that most of the very small amount of rain falls in the late *winter* when the temperatures are lowest and the pressure highest. This is caused by local storms, as may be seen from the fact that on the neighbouring Jebel of Yemen there is a *summer* rainfall of

just over 10 in. At Jacobabad in the north-west corner of the Thar Desert there is an annual rainfall of 3·8 in., mainly occurring in July and August. This very light rainfall is a characteristic of the deserts, very few areas being completely without rain. When rain does fall it usually comes as a torrential downpour, being caused by local thundery conditions. Indeed, this occasional rain often does more harm than good, causing the wadis to be filled with violently rushing water and sweeping away the meagre barley crops. Frequently places are affected by such a storm only once in a few years so that an average rainfall of 3 in. may be arrived at by including one storm yielding, say, 10 in., the remainder of the period being absolutely dry.

One is apt to think of these deserts as permanently hot, and this impression tends to be confirmed if one consults a climatic chart. This, however, usually confines itself to giving only the mean average temperatures and thereby conceals a most important characteristic of the climate—the great diurnal range of temperature. For example, at Jacobabad it averages about 30° for most of the year. Voyagers along the Red Sea experience a practical illustration of this at sunset, for the temperature suddenly falls appreciably and the unwise expose themselves to the risk of chills if they do not immediately put on warmer clothing. The climatic feature is caused mainly by the fact that deserts consist of polished sand particles and hard rock face so that during the daytime the sun's rays are radiated immediately, causing very high air temperatures. The mean maximum temperature, *e.g.* at Jacobabad in August, is 112°. At sunset, however, as there is no stored heat, the thermometer falls quickly. A contributory factor is the absence of cloud which results in the heat-rays being dispersed throughout the atmosphere instead of being retained in the lower layers. Thirdly, there is the absence of vegetation.

Another characteristic of the desert is the sand storm. This is caused by sudden local changes of pressure setting up vigorous air displacement. Once set in motion the air gathers speed, for in the deserts there are few relief barriers to check its progress.

Natural Vegetation.—As in most other parts of the world the Arabian and Thar Deserts have only small proportions of



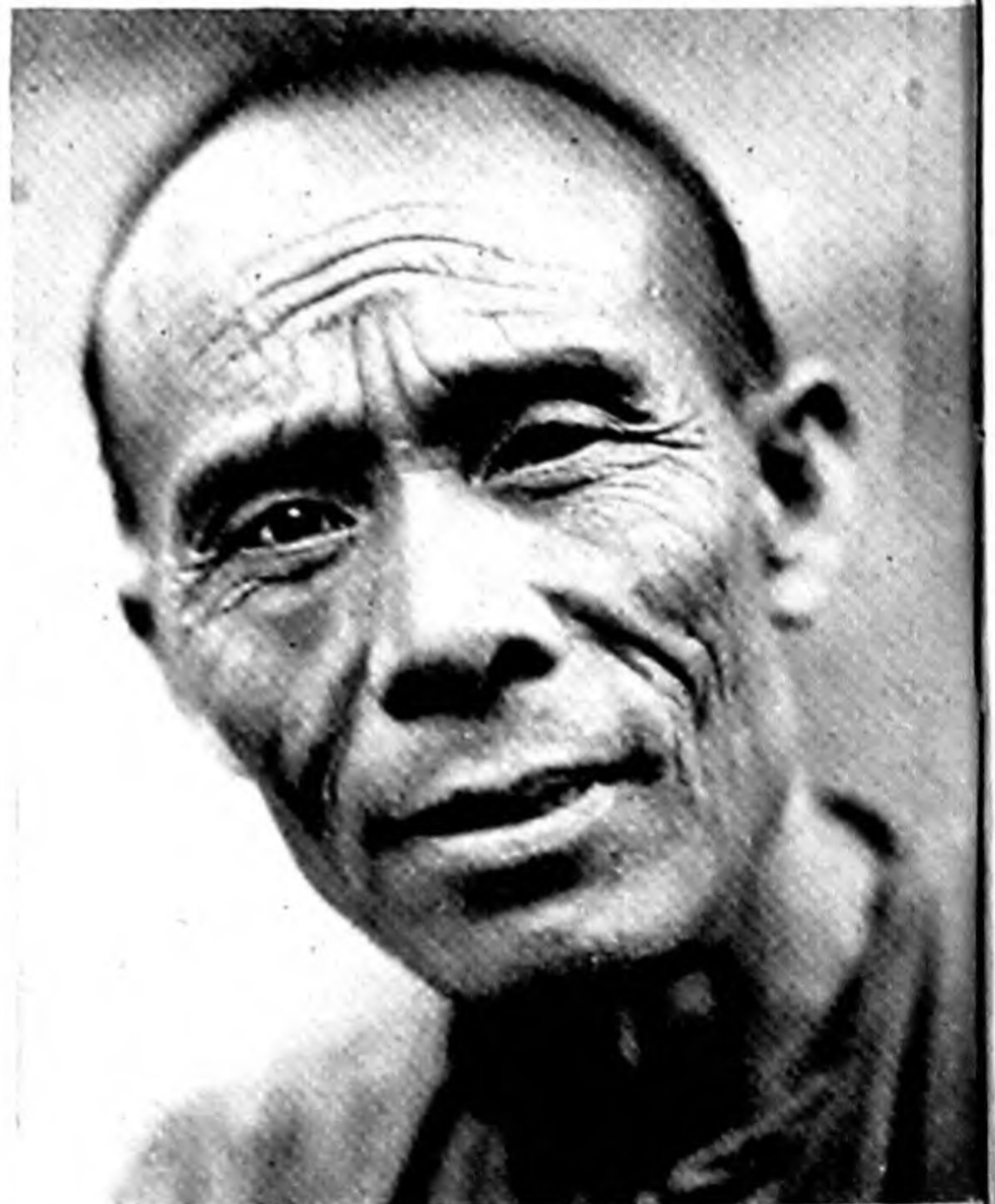
RACIAL TYPES.

ABOVE. *Left, Turkish Landowner. (Keystone.)*

Right, Korean Farmer. (Exclusive N. A.)

BELOW. *Left, Bedouin. (Exclusive N. A.)*

Right, Moro. (Exclusive N. A.)



RACIAL TYPES.

ABOVE. *Left, Balinese. (Keystone)*

Right, Dyak. (Exclusive N. A.)

BELOW. *Left, Russian Turkistan Woman. (Exclusive N. A.)*

Right, Chinese Coolie. (Exclusive N. A.)

their areas absolutely devoid of vegetation. In Arabia the true desert extends along a narrow belt through the centre of the peninsula widening out in the south to form the Rub'al Khali or Great Stony Desert. Surrounding this there is semi-desert country, mainly with tufts of coarse grass amidst the sand and with quite frequent oases, especially in the south-west. The latter usually support date palms. In the Syrian Desert to the north-west there is a strange type of sporadic vegetation. After a storm, which may come to a locality only once in ten years, the ground is literally carpeted with dwarf plants—the manna of the Bible. These germinate, blossom, seed, and die all in a few days, for the porous soil soon dries out, and this hurried life-cycle is their only way of preserving their species.

(4) THE MEDITERRANEAN SHORELANDS AND THE MESOPOTAMIAN TROUGH. *Climate*.—This region may be said to experience an East Mediterranean climate for, although it has the typical winter rainfall, there are several features which distinguish it from the true Mediterranean. Thus, the range of temperature is greater because the land-mass influence is stronger than the sea influence. For example, whereas coastal places in the West Mediterranean have an average annual range of temperature of 25°, that at Smyrna is 36°. Inland, of course, the range increases, e.g. at Baghdad it is 46°. Not only is the rainfall less, but also the summer drought is more complete. In the East Mediterranean area, average pressure is highest in winter as is the case further west. The rainfall is caused by the irregular passage of low pressure systems which enter the Mediterranean through the Gate of Carcassonne and the Gibraltar Strait. Sometimes these depressions penetrate to the Mesopotamian Trough and even along the Persian Gulf. It is the light rainfall from these which entitles us to include Mesopotamia in this region. The annual rainfall at Baghdad is 6.6 in. and it occurs from November to April.

Natural Vegetation. Forming a narrow fringe round the shorelands of the Black Sea and Eastern Mediterranean there is a continuation of the belt of typical evergreen shrubs and trees. Some of the hills, notably the Lebanon Mountains of Syria, had a natural forest cover until man removed such

trees as the famous cedars for building purposes or allowed goats to kill others, as happened in Cyprus. Much re-afforestation work has been carried out, *e.g.* the Balfour Forest of Israel. All sorts of drought-resisting devices have been developed. Plants are long-rooted to reach the moisture in the sub-soil; they have developed long, narrow leaves with thick wax-covered skins. These leaves are fleshy and contain cells for moisture storage for use during the summer drought. This accounts for the evergreen nature of Mediterranean vegetation. Many of the plants are rich in oil and give off powerful aromas when touched or when the leaves are crushed. The myrtle is a good example of this. Seeds are often protected by oily or juicy fruits. Indeed, the most characteristic plant, the olive, is well represented, *e.g.* on the Mount of Olives, Israel.

(5) IRAN, ANATOLIA, AND AFGHANISTAN. *Climate*.—Here again the “Mediterranean” influence is evident, for there is a definite winter rainfall maximum, *e.g.* at Teheran in Iran, of a total rainfall of 9 in., 7·9 in. falls in the six months November–April. At Kabul in Afghanistan the annual rainfall is 13 in. and of this over 11 in. falls from November to April. In this region, however, the range of temperature is greater. At Teheran it is 52° (33° January, 85° July); at Kabul it is 46° (30° January, 76° July). Another characteristic is the great diurnal range in the summer months—30° at Teheran and 32° at Kabul.

Natural Vegetation.—The characteristic vegetation of this region is the coarse grass of the High Steppe and the salt bush of inland drainage areas, known in Iran as the Dasht, with patches of true desert.

(6) TURKISTAN. *Climate*.—In Central Asia, in the lowland extending from the Caspian to the foothills of the Pamir Plateau, there is an area exposed to the north and screened from the south. The figures for Astrakhan, just outside Asia on the Caspian shore, give a very fair idea of the climatic conditions. Note especially the severity of the winters compared with the heat of the summers. The precipitation is light but the summer rainfall (April–September) is in the ratio of 1·73 to 1 to the winter snowfall. In winter, bitterly cold north-east winds bring fine snow.

Natural Vegetation.—Although there are patches of true desert, notably in the Kizil Kum and Kara Kum to the south of the Aral Sea, the greater part of the region is covered with poor steppe. In the area below sea-level to the south and south-east of the Caspian, there is much salt bush, which absorbs salt in solution through its roots and exudes it on its leaves which glisten in the sunshine.

(7) THE ASIATIC STEPPES. There are two regions which may be included under this heading:—

1. The famous Kirghiz Steppe which extends in a belt from west to east with its axis along latitude 50° N. and which is continued to the north-east, in the Upper Ob and Yenisei Basins, by an area of mixed forest and grassland. The Canadians call a similar tract to the north and east of their prairies, the Grove Belt.

2. The West Manchurian lowland.

Climate.—The first of these regions is far removed from the sea influences and so experiences great extremes of pressure between midsummer and midwinter, *e.g.* at Barnaul this varies between 30.45 in. in January and 29.75 in. in July. This variation is mainly caused by the corresponding temperature changes because the annual range of temperature is about 70° , *i.e.* from just below zero in midwinter to nearly 70° in midsummer. The rainfall is predominantly a summer one, *e.g.* Barnaul has 70 per cent. of its 14 in. in the period May-October; Tomsk 66 per cent. of its 19.8 in., and Semipalatinsk 63 per cent. of its 7.3 in. in the same period. This summer rainfall is caused by the penetration of westerlies from the Atlantic. In the winter the chief precipitation is snowfall occurring in the autumn half. In this region temperatures often fall far below the average in mid and late winter, when north winds bring blizzards of fine powdery snow.

In Manchuria the extremes of temperature are equally great, *e.g.* at Mukden they range from 8° in January to 77° in July, and at Harbin from -2° in January to 72° in July. The rainfall is, of course, heavier than that of Central Asia and the summer proportion is even higher, *i.e.* 78 per cent. of about 24 in. That is because south-east winds are drawn into the land-mass owing to the low pressure over the interior.

The moderate rainfall is caused by the enclosed nature of the lowlands, because they are in the rain-shadow of the Korean Highlands. The winter drought is caused by the reversal of pressure and winds so that they are now off shore.

Natural Vegetation. The low winter temperatures, the heat of summer, the moderate rainfall, and the light soils combine to prevent tree growth so that the temperate grassland predominates. Along the southern edge of the Kirghiz the grass merges gradually into semi-desert. In the north-east trees gradually make their appearance, forming a transition between the Steppe and the northern forests. In the west of Manchuria, where the land rises towards the Khinghan Range, there is also a belt of semi-desert caused by the porous nature of the loess soil.

The temperate grasslands are at their best in spring when the melting of the snow and the coming of the early rains combine to moisten the soil. Fresh green blades of grass are mingled with myriads of flowers. In the heat of summer the green gives way to brown as the grass becomes parched.

(8) TIBET. The great plateau of Tibet, bounded to the north by the Altyn Tagh and to the south by the Himalayas, opens to the east into series of parallel ranges and deep valleys. The plateau averages 14,000 ft. above sea-level and none of the valleys falls much below 12,000 ft.

Climate.—On the exposed plateau the winters are bitterly cold and icy snow-laden winds make the plateau impossible to cross. Even in summer, conditions are not much better. In the valleys, however, there is greater shelter and, as the figures for Leh show, the summers are pleasantly warm. Note the low rainfall. On the high fold ranges the snow comes chiefly in summer, the winters being cold and dry. This summer snowfall is, of course, caused by the inflowing monsoon winds rising up the mountain slopes.

Natural Vegetation.—Over the greater part of the plateau, the vegetation is akin to that of the tundra with much moss and lichen, although in the north-east round the high lake, Koko Nor, there is an extensive tract of marshland. On the surrounding mountains and along the high ranges which cross the plateau tundra gives way to ice-desert.

(9) THE GOBI DESERT AND THE TARIM DEPRESSION. *Climate*.—Lower in altitude but higher in latitude than the Tibetan Plateau, this region is equally cold in winter but has a deficiency of rainfall. In the extreme west of the Tarim Basin, Kashgar has a January temperature of 22° and a July one of 80° , whilst in the north-east Ulan-Bator (Urga) varies from -15° to 63° . Kashgar's rainfall is 3.5 in., almost all of it in summer.

Natural Vegetation.—Much of Mongolia consists of the Gobi or Shamo Desert and there is also true desert in the centre of the Tarim Depression. In Northern Mongolia there is enough rain to support coarse grass. It was from this region that the Mongol horsemen swept into Europe and China, and it is still inhabited by nomadic horse and cattle men. Around the edge of the Tarim Basin there are frequent oases of good grass watered by streams from the surrounding mountains where there is a higher rainfall and where there are, in some cases, glaciers.

(10) THE SIBERIAN FORESTS—extending from the Urals to the Pacific Coast. *Climate*.—Throughout this area the winters are extremely cold. Indeed, Verkhoyansk, in the north-east on the edge of the forest, is known as the winter North Pole of Cold because it is the coldest place in the northern hemisphere with a mean January temperature of -59° . With a summer temperature of 60° it has the greatest known range of temperature (119°). Although other places are not so cold as Verkhoyansk, they are cold enough. Irkutsk, in the extreme south, has a January temperature of -5° and a July one of 65° . Vladivostok, on the south-east coast, has a January temperature of 5° and an August one of 69° . Okhotsk, on the north-east coast, has a January temperature of -10° and a July one of 55° . Rainfall is moderate throughout the area and occurs mainly in summer, e.g. at Verkhoyansk it is only 5 in., of which 3 in. fall in June, July, and August. At Vladivostok it is 22.5 in., of which 17.5 in. fall in the period from May to October. At Irkutsk it is 15 in., with 10.5 in. between May and October. The winter precipitation is, of course, mainly in the form of snow which averages about 3 ft. at Irkutsk and a great deal more in the north-western regions. A feature of the climate is the great diurnal range

of temperatures, especially in the spring. Thus at Irkutsk it varies from 0° to 30° in March and at Verkhoyansk in April the range is 35° . This is because the sun's rays begin to make themselves felt in the day-time but the still frozen earth quickly cools the air at night.

Natural Vegetation.—Only very hardy vegetation can stand up to the great winter cold combined with the moderate rainfall. Most of this vast area is covered with a forest of small coniferous trees, but the actual composition of the forest varies from west to east. From the Urals to the Yenisei the fir, spruce, larch, and pine trees are interspersed with a great deal of marshland. From the Yenisei to the Pacific the forest is more continuous. The difference is mainly due to the geology, for the boulder clay of the western half is more favourable to the development of marshland than the hard rock of the eastern. In the extreme east where the rainfall is heavier and the winters are mild the vegetation is more mixed, for amongst the conifers there are patches of such deciduous trees as the oak and the elm, the maple and the walnut. The conifers adapt themselves to the winter cold in several ways. They have long roots below the frozen top soil, their bark is thick to protect the sap which circulates throughout the year. They are evergreen, their leaves being needle-shaped thus exposing the minimum surface area. The branches of many types slope downwards, which has the advantage of preventing the weight of the frozen snow from snapping them, as happened to many of our own trees in the severe winter of 1939-40.

(11) NORTHERN CHINA AND NORTHERN JAPAN, EASTERN SIBERIA. *Climate.*—This region is very much affected by the alternations of temperature and pressure over the interior. Indeed, some authorities include much of it in a Temperate Monsoon Climate, but it seems preferable to think of monsoons as confined to tropical areas. As this area has characteristics comparable to those in North-Eastern America we include it in the St. Lawrence type.

The winters are cold because the Asiatic high pressure causes an outflow of bitterly cold air. Mainland areas and those on the west coast of Japan experience much colder conditions than those on the east coast, as a comparison of the figures for Vladivostok (a border line case) and Tokyo

will show. This is partly because of the shelter afforded to the latter by the mountain backbone of Honshiu, and partly because the Japanese coast is affected by the warm Kuro Siwo current which washes the eastern shores, contrasting with the cold northerly current which flows along the mainland coast. The summers are hot throughout the region. There is a definite summer maximum rainfall. Here again Japanese stations show distinct differences from those on the mainland. The total amount received is greater, and it is more evenly distributed throughout the year.

Natural Vegetation.—Most of the area has been cleared of its natural vegetation, but where it remains it is a close forest of deciduous trees such as the wild cherry of Japan and the mulberry of North-East China and Japan, together with bamboo on the lowlands and conifers on the high ground.

(12) SOUTH-EASTERN CHINA, SOUTHERN JAPAN. *Climate.*—This area experiences much higher summer temperatures than Region 11, and the winters though still cool are noticeably warmer. Compare Vladivostok (January 5°, August 69°) with Shanghai (January 38°, July-August 80°). This is, of course, the natural effect of the lower latitude of the latter, but we can still note the influence of the outflow of cold air from the interior in winter. The rainfall is fairly heavy with a pronounced summer maximum. In winter the prevailing wind is north-easterly so that a certain amount of moisture laden air is blown inland, but in summer the wind is directly on-shore from the south-east.

An interesting comparison may be made between the rainfalls of Shanghai and Hankow. The former, although on the coast, has only 44 in., and the latter, well up the Yangtse Valley, has 51 in. The former ranges from 2.2 in. in January to 6.5 in. in June, and the latter from 1.5 in. in January to 9.2 in. in June. The differences may be explained by the fact that in winter Shanghai is more affected by the north-east winds, whereas in summer Hankow, which is in an enclosed valley, is much affected by convectional rainstorms.

Natural Vegetation.—Here again little is left in most parts, but where it is, there is dense sub-tropical forest, particularly on the more sparsely-populated Formosa and such nearby

islands as Nan Ko which have a very high rainfall. The bamboo is very common in this area.

(13) THE TUNDRA. A narrow belt along the Arctic shore. *Climate*.—The northern limit of tree-growth is taken to be the 50° F. July isotherm so that all the region to the north of this may be included in the tundra. The summers are on the average cool, *i.e.* 40° - 50° , but as the region is beyond the Arctic Circle the sun does not set throughout the period March-September so that in sheltered valleys quite high temperatures are recorded at "midday," *i.e.* when the sun is at its highest. The winters are, of course, bitterly cold, varying from -40° in January in the east to -8° in the west. The difference may be accounted for by the influence of the warm North Atlantic Drift and south-west winds. There is much snow in the winter and in summer there is a small amount of rain, usually a drizzle.

Natural Vegetation.—The tundra may be sub-divided into three types according to altitude. First there is the high tundra, consisting of barren rock with only moss and lichen. Next there is the middle tundra, *i.e.* the slope between the hummocky high ground and the river valleys. In some parts this is covered with Arctic grass, a tough kind which withstands the severe winters. There are also stunted little trees not more than a few inches high but with all the features of their larger counterparts. Berry-bearing bushes like the bilberry and the cranberry are common. The low tundra or valleys are frozen wastes in winter, but in summer the top four feet or so of soil thaws leaving underneath to a depth of about eight feet a belt permanently frozen. Consequently the flat lowlands become marshy. As the rivers thaw in their upper courses first, the water flows down and adds to the flooding. The marshlands are gay in summer with such bulbs as the snowdrop and crocus. One unpleasant feature in summer is the myriads of mosquitoes which rise from the marshlands. Travellers who have visited both the Equatorial lowlands and the Arctic tundra have declared that they found the insects much the more troublesome in the latter.

CHAPTER III

THE PEOPLES OF ASIA

According to Wells and Huxley, *Science of Life*, the first men originated in Central Asia. For millions of years hot moist conditions had led to the growth of luxuriant forests over much of what we now call the temperate zones. In those forests there had evolved the ape family, tree dwellers who used their hands to grasp the branches. Then came a gradual cooling of the climate which caused the disappearance of trees and their replacement by grassland in all but the Equatorial regions. Now some branches of the ape family were able to travel southwards, keeping within the shrinking forest and so never forced to alter their way of life. Some, however, lived in Central Asia, and these were trapped because during this period the highlands of Tibet and the Himalayas had been thrown up forming a barrier to the south. The apes then were forced to alter their whole mode of life. Vegetable food was no longer easy to find and the animals had to begin to eat flesh, but they were heavy, clumsy tree climbers and they could not hope to catch their fleeter-footed prey by merely running after them. Their hands came in useful to hold and throw large stones and once they had been used in that way other uses would suggest themselves, which helped in developing the brain into a reasoning machine from a mere receiver of sensations.

This brings us up to about half a million years ago. Since that time the world has been populated by people, in families and tribes, gradually moving outwards from Central Asia. As they moved they came under different climatic and other geographical conditions, and so developed different characteristics of colour, hair, facial features, etc., thus beginning the white, yellow, and black races. We shall find examples of all in Asia. This is one theory, the Dispersal Theory, but other authorities consider that the various races of men developed independently of each other in widely scattered parts of the earth.

By far the most widespread and numerous of the Asiatics are the Mongols or peoples of the yellow race. Their racial home is the semi-desert upland of Mongolia. They are slant-eyed, have high cheekbones, straight black hair, yellow skin, and are, in general, beardless. In the grassland and semi-

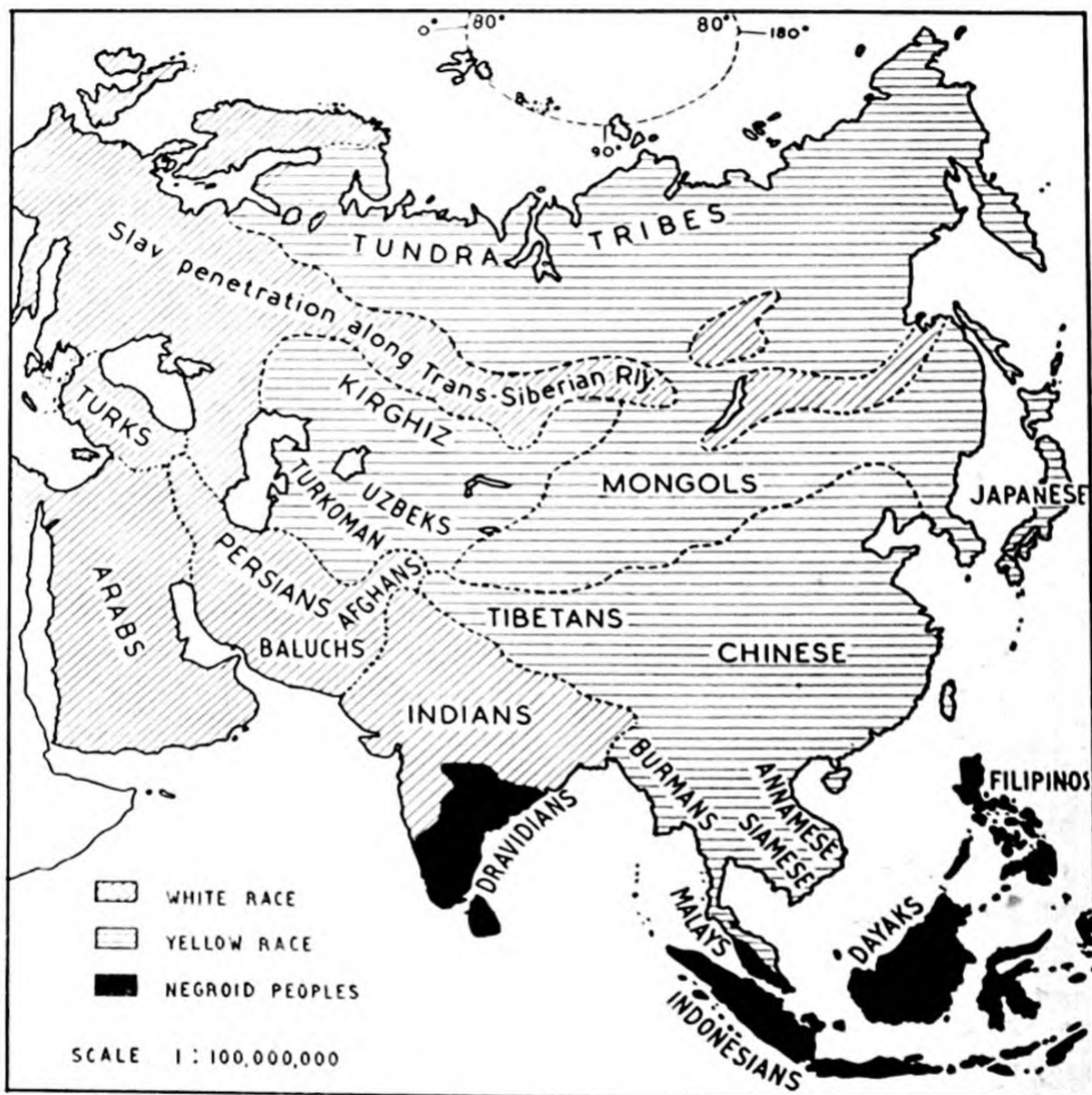


Fig. 12. THE PEOPLES OF ASIA.

desert areas of their homeland they are horsemen from a very early age so that they become bow-legged. At intervals during prolonged droughts, or when the population has increased to a greater extent than the country can support, hordes of these Mongols have moved out in all directions. Some have passed through the Dzungarian Gate to the west

and making their way along the belt of steppes, have passed through the Ural-Caspian Gate into Europe (*e.g.* the Huns, Cossacks) or have settled in South-West Asia (*e.g.* the

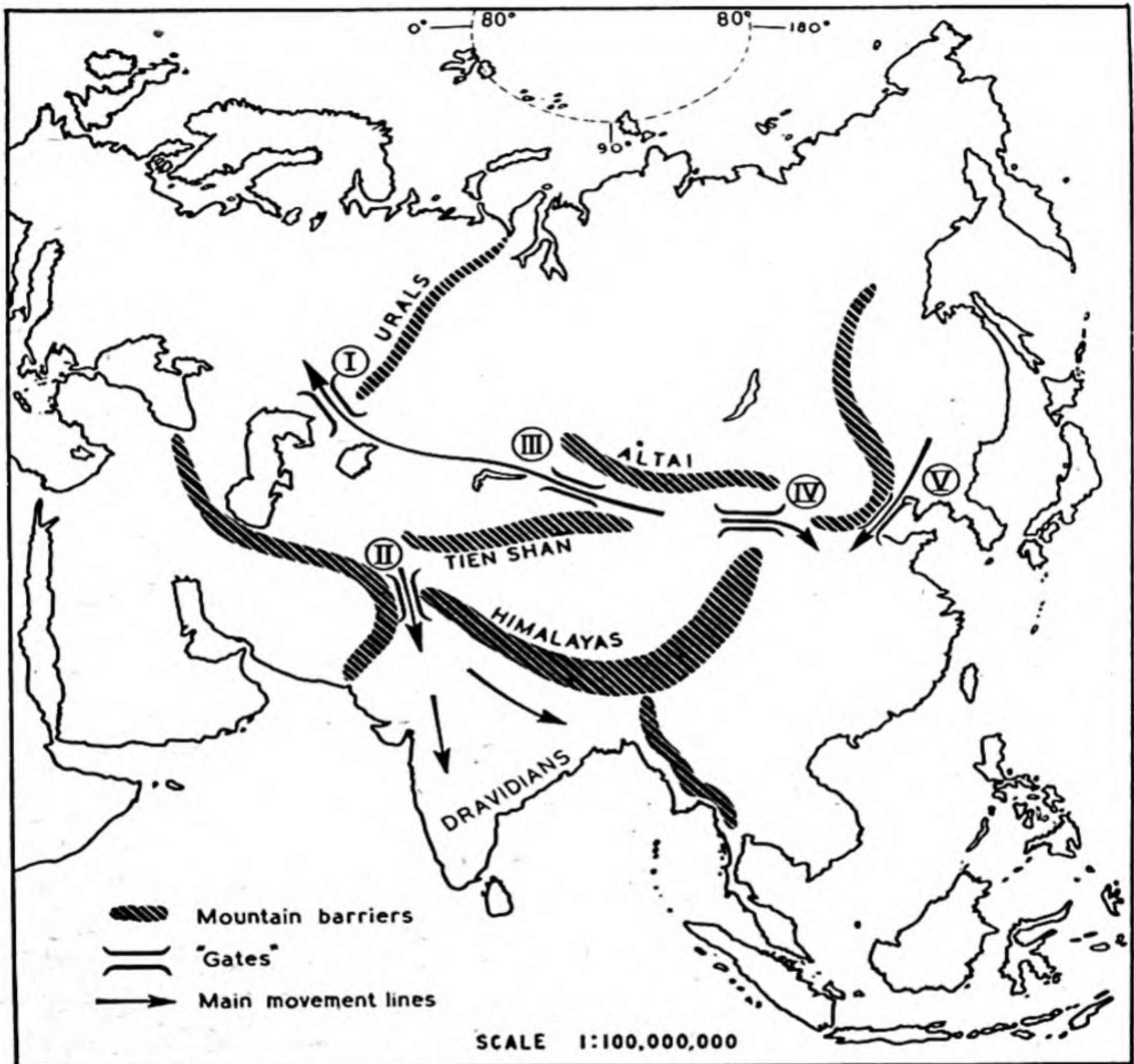


Fig. 13. CHIEF MOVEMENT LINES AND MAIN GATEWAYS.

(I) The Ural-Caspian Gate. (II) The Khyber Pass. (III) The Dzungarian Gate. (IV) The Wei-Ho—Hwang-Ho Valley. (V) The Pei Ping Gate. (I) and (III) were used by Mongols at various times to enter Europe, (II) by the Hindus and Moslems to enter India, and (IV) by the Mongols and (V) by the Manchus to enter China.

Uzbeks). Others travelled down the Wei-Ho and Hwang-Ho valley into China to become the "Farmers of Forty Centuries" as F. H. King has called the Chinese. Others ventured overseas to the Japanese festoon of islands. Some climbed

the Central Asiatic Highlands and made their way into Burma and Siam and even into the mountains of Nepal (the Ghurkas). Others ventured through the belt of forests until they reached the Arctic, when they ranged along the shores to develop into Lapps, Finns, Samoyeds, and Chuckches, or after crossing into America, Eskimos.

All these groups have retained their main physical characteristics of complexion, hair, eyes, but in other ways their appearance has changed. Thus the Chinese are straight limbed but age quickly owing to the hard labour on the fields and to rheumatism brought on by working in water-logged paddy. The Japanese are short and wiry because of the hard struggle on an over-populated group of islands. The northern tribesmen are short and fat, for they, too, have a hard life, but they eat as much fatty food as possible to protect themselves from the cold.

The white race is supposed to have originated in South-West Asia and to have moved outwards. Some, of course, spread across Europe to become in the north-west what has often been termed the "Pink Race." Others moved across Persia and settled in Arabia (the Semites), and a third group moved in two waves into India via the Khyber Pass. After many generations, their complexions have become very dark so that they are sometimes referred to as of the brown race, but actually they exhibit many of the features of the white race, *e.g.* their fine nostrils and thin lips which distinguish them so much from the negroes.

The latter are represented in South-Eastern India (the Dravidians), in Ceylon, in the Andaman and Nicobar Islands, and in parts of Malaya and the East Indies. It is thought that they were the first to move from Central Asia, passing into Arabia and thence into Africa in one direction and into India in the other. As the two waves of "Whites," the Hindu and the Muhammadan, pressed farther and farther into India, so the negroes were pushed into forested mountain areas, *e.g.* Northern Deccan or into the south-east corner, some even crossing to Ceylon possibly via the line of coral islands, "Adam's Bridge." This reverses the Singhalese legend that the world was populated by people spreading out from Ceylon by means of "Adam's Bridge."

Asia has been the birthplace of all the world's great religions, but, even so, vast areas of the north-east are populated by pagans who follow Shamanism or spirit worship. There are many pagans, too, in the isolated parts of India, China, and the East Indies, especially Borneo. The chief cradle of religion has been Arabia for it is from here that Christianity, Judaism, and Muhammadanism have spread. It has been said that shepherds, "watching their flocks by night," and caravan leaders who travel by night to escape the heat, have much time to notice the mysteries of the skies and so it is not surprising that they should speculate on nature and evolve ideas of a supreme creator. A study of the Old Testament will bring this out clearly.

The two other great religions, Brahmanism, or Hinduism, and Buddhism, both originated in India. The former was a logical development from nature worship and retained the idea of a Sun God and the worship of a river, Mother Ganges. This was natural because the inhabitants of the Ganges Valley knew full well that they had to rely on the warmth of the sun and the moisture from the river to grow their crops. The main characteristic of the Hindu religion is the Caste system which is based on the ideas that the soul does not die but enters the body of another creature, and that one must follow the vocation of the caste into which one is born, so as not to interfere with destiny. It has led to aversion to taking life even of animals and to a variety of rules forbidding association of peoples of different castes. Modern conditions of travel and industry will rapidly break this system down. Thus already there have been modifications in the attitude of caste Hindus towards the Untouchables or Outcasts, who live mainly in South-East India and who are now allowed to worship at Hindu temples. In November, 1948, the Government of India proclaimed that in future caste should not prevent any body from following any occupation.

The second great religion to originate in India was Buddhism. Buddha evolved a philosophy of life which was on a much higher plane than that of the Hindus. This horrified the highest-caste Hindus, the Brahmins or Priests, of which he was a representative. Consequently Buddhism made little progress in India but gained many adherents in Ceylon and amongst the whole of the yellow race of Eastern

and South-Eastern Asia. Few of the Chinese or Japanese, however, are pure Buddhists. Most of them are Ancestor-worshippers and in China there are many followers of Confucius, who did not so much found a religion as a philosophy; by this we mean that there are no rites or ceremonies connected with it but that its author enunciated certain guiding principles of living upon which his followers base their conduct.

CHAPTER IV

THE NEAR EAST

The area extending from the Black Sea to the Gulf of Aden is often called the "Land of the Five Seas"—a very apt name; the five seas bordering it being the Black Sea, the Mediterranean, the Caspian, the Persian Gulf, and the Red Sea. It is easy to see why it has been such a bridge-land between Asia on the one hand and Europe and Africa on the other, and why it has been such a meeting-place of races and has had such a rich and varied history. Incidentally, the term Middle East is often wrongly applied to this area.

Politically the region includes Anatolia, Persia, Syria, Iraq, Israel, Jordan, Yemen, Aden, the Hadramaut, and Oman, etc. As this covers far too wide an area for a detailed study we deal in this chapter only with general considerations and the details of Arabian lands.

Structurally there are four sub-divisions. In the north there are the great plateaux of Anatolia and Iran, flanked by their fold ranges. Secondly, there is the trough of Mesopotamia, a synclinal lowland. Most of it is composed of fertile alluvium deposited by the Tigris and Euphrates and removed by them from the former region. Thirdly, the shorelands of the Levant consist of the narrow coastal plains of the Lebanon and Israel, backed by the Lebanon Mountains and the plateau of Judea. The Rift Valley forms a great trough from north to south across the area. Lastly there is the Arabian Plateau with its steep, tilted edge facing the Red Sea and a gentle slope towards the Persian Gulf.

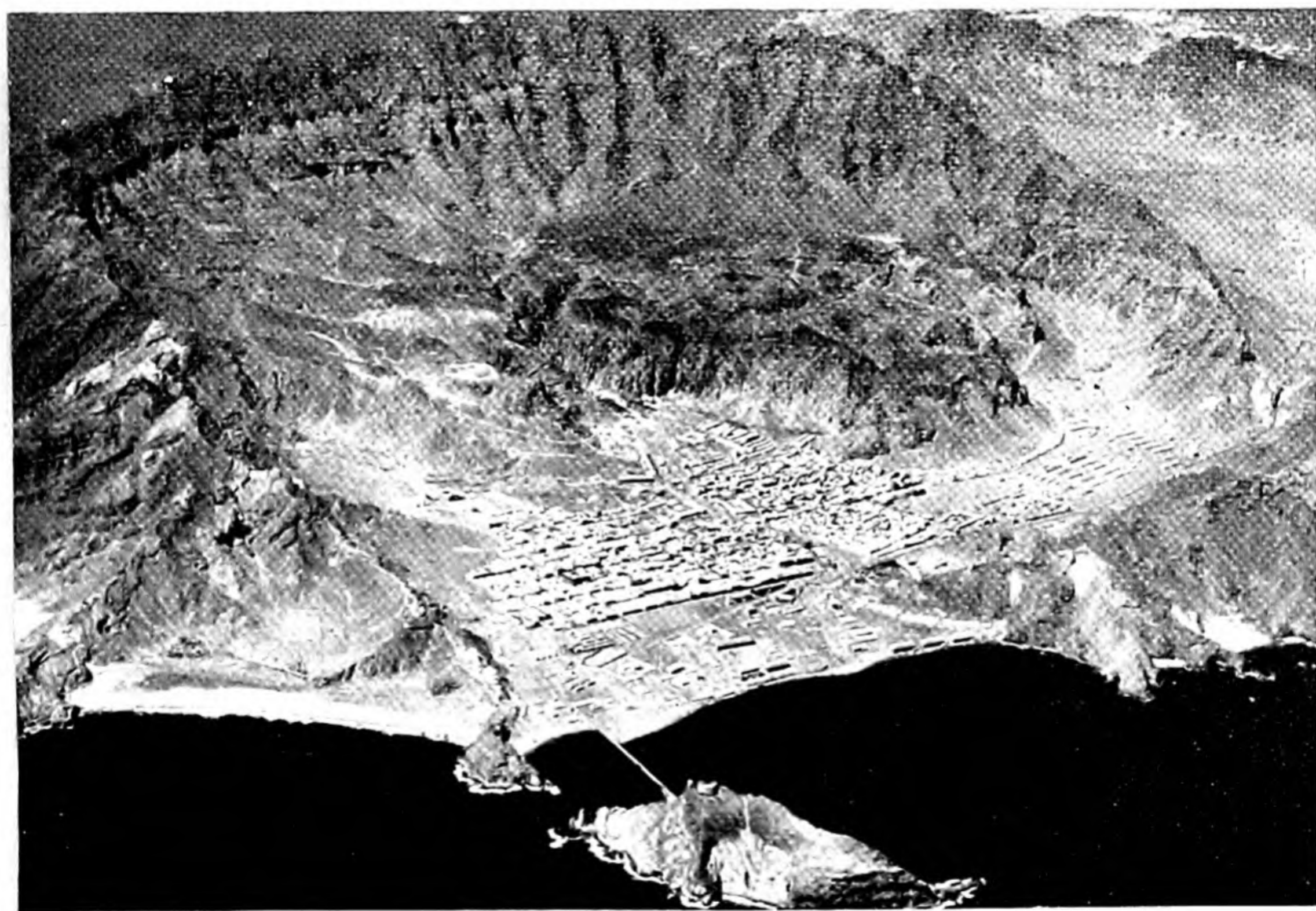
Climatically, the whole area has several common characteristics. The summers are hot and dry and there is a deficiency of rainfall except in Mediterranean and Black Sea coastal areas. The rain falls in winter when the temperatures vary considerably according to altitude and position (latitude and distance from the sea), from the bleakness of the Persian Plateau to the heat of Aden (mean January temperatures: Teheran, 35° F.; Aden, 76° F.).

Iraq

This Arab Kingdom, based on the valleys of the Tigris and Euphrates, became completely independent in 1932, having been under British Mandate since the end of the First World War in 1918. Like the rest of the Arab lands, it had previously been for some centuries under Turkish rule. During that time nothing had been done to repair the damage done by the Mongols so that all the ancient irrigation canals had fallen into disuse and the country could support only a fraction of the population which flourished there in the days of Babylon. In an area of 117,000 square miles there are $3\frac{1}{2}$ million people, *i.e.* about 30 to the square mile, and the standard of living is low. Remember that Iraq forms part of the "Fertile Crescent" which extends from the Persian Gulf to Palestine.

Disregarding that part of the Syrian Desert which is included along its western boundary, Iraq consists of the riverain lowland of Mesopotamia ("between the rivers"). It is sub-divided into two parts—(a) the north-western, in which the rivers flow in valleys below the level of the surrounding country. Thus, as far as Hit, the Euphrates flows in a narrow steep-sided valley. It is in this part that the Tigris receives most of its tributaries from the Zagros Mountains. Tigris means "the Arrow" and it is much swifter than the Euphrates so that much silt is carried into the lower reaches. Between the rivers is a plateau covered with poor steppeland grass.

(b) From Hit to the Persian Gulf the lower basin has its rivers above the level of the plain, for like most great rivers in their lower courses they have built up embankments with their own silt. In early geological times the whole of the area was under the sea, which gives an indication of the amount of silt which must have been deposited. The process is still going on. The two rivers approach each other very closely near Baghdad, only to diverge again until they finally meet at Basra to form the Shatt-el-Arab, the navigable channel leading to the Gulf. The plain is threaded by numerous distributaries which lead from one river to the other, thus providing a ready-made framework for irrigation schemes (cf. Riverina of New South Wales, Entre Rios of Argentina). The very hot summers and the low rainfall (Baghdad—July



Above: BASRA. AN AERIAL VIEW SHOWING THE SUBURB OF ASHAR WHICH FORMS PART OF THE PORT. (Exclusive News Agency.)

Below: ADEN. AN AERIAL VIEW SHOWING THE CRATER AND SIRAH ISLAND. (Exclusive News Agency.)



Above: ARABIA. MUKALLA FROM THE WATER-FRONT. (Exclusive News Agency.)

Below: ARABIA. THE MAIN SQUARE OF SHIBAM. (Exclusive News Agency.)

temperature, 95° F.; rainfall, 6.6 in., in winter) render such irrigation essential for cultivation and much work has already been done towards restoring the system. In the winter, wheat and barley are grown, and in summer over 10,000 acres of cotton, mainly along the Diala River to the north-east of Baghdad. About 80 per cent. of the world's dates are produced in Iraq, chiefly along the Shatt-el-Arab between Basra and the sea. Some rice and millet are also grown.

Many sheep and goats are reared on the northern steppes, mainly by Kurds and Assyrians who have descended from the neighbouring mountains of Turkey and Persia. This accounts for the considerable exports of wool, hides, and skins. Before the defeat of Turkey in the First World War, the people were nomadic and used to spend their summers in the mountains, descending to the milder lowlands in the winter. Now that they are unable to do this, they have changed their manner of living in two ways. They live in villages of stone instead of tents and they have taken to cultivating barley, wheat, maize and rice, melons and tomatoes, for their own use, and tobacco for export. In sheltered valleys grapes, mulberries, walnuts, apples, pears, pomegranates, and figs are grown. Methods are very primitive, *e.g.* wooden ploughs made roughly from forked trees are in common use. Owing to the more settled conditions the numbers of animals have decreased as the area under cultivation has increased.

Bitumen has been used for various purposes since very ancient times. Where it exists there is a sure indication of the presence of petroleum. Indeed, in North-Eastern Iraq there is an important oil-bearing area. Wells are worked in the neighbourhoods of Mosul, Kirkuk, and Khanaquin. The oil is carried by pipe line to the Mediterranean ports of Banias and Tripoli. A new oil-field is being developed near Basra. In 1951 Iraq's production of petroleum was 8 million tons and the output is rapidly increasing. (July 1952—annual rate 15 million tons.)

The capital, Baghdad, situated at the point where the Tigris and Euphrates most nearly approach each other, and at the confluence of the Diala and Tigris, is the chief route centre of the country. It is significant that nearly all the Governments of the area throughout its long history have had their capitals in this region, the only important exception being

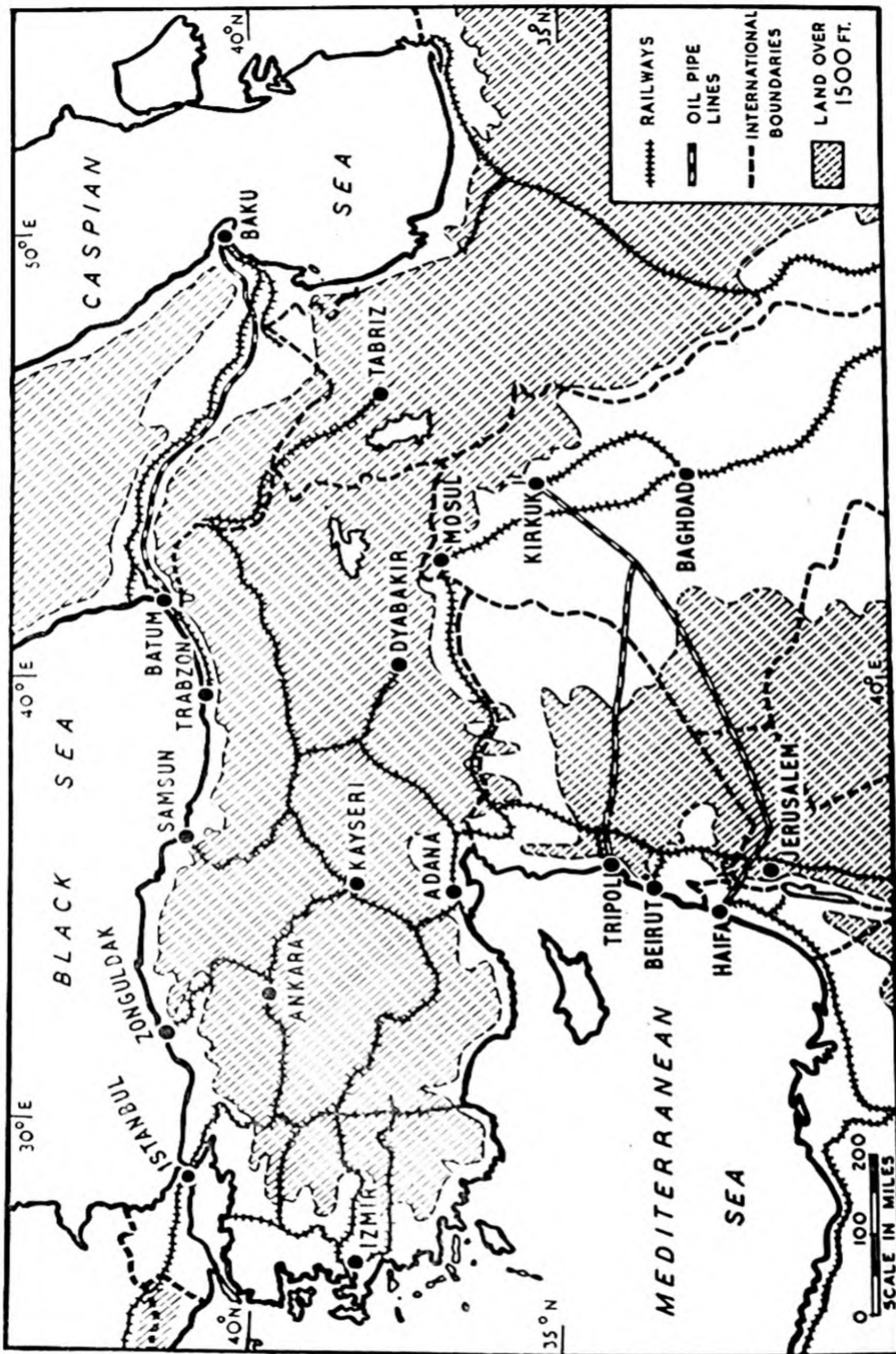


Fig. 14. THE NEAR EAST—RAILWAYS AND PIPE LINES.

A new oil pipe-line opened in 1950 runs from the Persian Gulf through Arabia, Jordan, and Syria, to Sidon on the coast of Lebanon, between Beirut and Haifa (see p. 52).

Nineveh (Babylon, Seleucis, and Ctesiphon are examples). Basra, the port, is the chief commercial centre. About $2\frac{1}{2}$ million tons of shipping use it annually. Because of its key position, the country is well served by airways, being on the main routes from Britain and U.S.A. to India and further east. The giant planes contrast strangely with the small coracles, used to ferry goods across the rivers. These are made of inflated skins, palm fronds coated with bitumen, or basket work. They carry anything from melons to donkeys.

The greatest need of Iraq is the control of the Tigris and Euphrates floods which sweep down annually from Turkey and not only damage the agricultural lands, but endanger Baghdad. As the floods originate in Turkey, nothing much can be done except by international co-operation.

Arabia

A large proportion of the peninsula is under the control of Saudi Arabia, the chief exception being a belt extending from Yemen in the south-west to Oman in the south-east. Saudi Arabia has an area of about one million square miles, with a population of approximately 10 millions. Again, apart from some coastal areas, it is nearly all desert inhabited by Arabs, rearing camels, sheep, and goats. It consists of a tableland tilted from south-west to north-east. In Oman there is a high ridge, really part of the Persian fold system. In Jebel Akhdar it rises to 9900 ft. There is, of course, no river system, but there is a series of wadis running into the desert from the hills overlooking the Red Sea. They occasionally run with water after severe storms occur in the hills, but normally the water is under the sand.

The area along the Red Sea coast (apart from the extreme south) is known as the Hejaz. For its prosperity it relies almost entirely on the thousands of pilgrims who annually visit the Muhammadan holy cities of Mecca and Medina. Dates are grown in oases such as Medina, which also produces fruit and honey. The chief port is Jidda, linked with Mecca and receiving pilgrims from India and Indonesia by steamers and from the opposite coast of Africa by dhows.

The vast interior, known as the Nejd, is a great red sandstone desert with fairly frequent oases which form links along the many caravan routes with junctions at such centres as Jauf,

Hail, and Ar Ryadh. Caravans of camels carry goods such as dates, barley, hides, wool, and ghi (clarified butter). Camels, horses, donkeys, and sheep are reared. An American company is now obtaining petroleum from a field near the Persian Gulf. An entirely new town of several thousand inhabitants, Ras el Mishaab, has grown up as the headquarters of this oil-field and terminal of a pipe line (the T.A.P. line, or Trans-Arabian-Pipe-line) which carries oil across Saudi Arabia to Hail and thence through Jordan to Sidon on the Lebanese coast. This pipe line, which was built at a cost of over £50 million, is intended to convey at least 14 million tons of petroleum a year, thus saving the services of a fleet of 60 large tankers using the circuitous Suez Canal route. The Saudi Arabian oil-field is now producing more than 40 million tons a year, or more than Persia before the Anglo-Iranian dispute.

YEMEN in the extreme south-west is a mountainous country and is chiefly noted for its coffee, which is of very high quality. It is grown on the hill-slopes facing the Red Sea and is exported from Mocha, after which town it is named. Barley, wheat, and millet are grown in the northern wadis.

ADEN is a British Colony and Protectorate. The former is situated on a volcanic peninsula 15 square miles in area. The peninsula is joined to the mainland by a low sandy isthmus just above sea-level. On the isthmus "pans" have been excavated in the sand and the sea-water is allowed to fill them at spring tides. As the water evaporates in the burning sun a deposit of salt is left some six inches thick.

Aden is one of the most important refuelling and strategic points on the route from Britain to the Far East, and has a large transshipment trade, goods being brought from East Africa (especially goat-skins) and other Arabian ports by dhow to be transferred to ocean-going vessels. The value of the re-exports of hides and skins, oils, coffee, gums, tobacco, grains, and sugar, amounts to £4 million a year. The population of the Colony is 50,000. The Protectorate, which is very similar to Yemen, has a population of 600,000.

THE HADRAMAUT is the name given to the coastal belt facing the Gulf of Aden and is ruled by several Sultans under British protection. As there is only intermittent rainfall.

mainly in spring, the area is semi-desert, but along some of the wadis the streams are guided by sand-dykes into fields where millet and barley are sown on the moist soil. In other wadis, *e.g.* the Wadi Hadramaut, wells are used. Here dates are grown, each palm being surrounded by its own moat. The flowers have to be dusted with pollen to fertilise them. In the semi-desert there are many nebk trees which serve a variety of purposes. The wood is dark, hard and close-grained, and is used as building timber; the tree has an edible fruit, and its leafy branches are beaten down with long poles to serve as fodder for goats. In Hadramaut the women and girls act as goat-herds and do much of the other manual labour including collecting thorn bushes for fuel. The towns are built close against the steep sides of the limestone cliffs which overlook the wadis. Many of the men of all the Arab coasts, and of the Island of Sokotra, are engaged as sailors, trading like their ancestors, in dhows which penetrate to all the ports of the northern and western coasts of the Indian Ocean, *e.g.* over 2000 dhows enter Aden every year.

MUSCAT AND OMAN, an independent Sultanate at the entrance to the Persian Gulf, has a coastline of nearly 1000 miles. There is a plain along the north coast, never more than 10 miles wide and backed by the Jebel Akhdar Range. Beyond this there is a plateau about 1000 ft. in height. The most favoured part is the Batineh coast plain which produces very fine quality dates that come on to the market before those of Iraq. There is another fertile area on the highest parts where there is sufficient rainfall to allow grass to grow. Camels are reared in the interior. The total population does not exceed half a million and most of them are Arabs. The towns are inhabited mainly by Indians, Baluchis, and Negroes, the last having been introduced originally as slaves. Muscat, the capital, has a population of 4000 and is the chief port, but it has lost most of its internal trade to Matrah (8000) which is the starting point of caravan routes. The chief exports, mainly to India, are dates, pomegranates, limes, and dried fish.

KUWAIT STATE in the north-west corner of the Persian Gulf is for the most part a desert with patches of borage and coarse grass. The latter provides good grazing for camels

which converge upon Kuwait along many caravan routes. Dhows are built from timber imported from Malabar and East Africa. Petroleum production has greatly increased in the last five years and the annual output of over 40 million tons is greater than that of Persia and is still increasing rapidly. A new port, Mina al Ahmadi, has been created, and is now the headquarters of the largest shipping line in the world, the British Tanker Company, transferred from Abadan. The population of Kuwait (120,000) has benefited greatly from the £50 million received annually in royalties. Drinking water is now distilled from sea-water, roads have been built, and sanitation introduced.

THE BAHREIN ARCHIPELAGO lies 20 miles off the Arabian coast, the largest island being about the size of the Isle of Wight, *i.e.* about 150 square miles. Fresh water is obtained from some 200 springs which are fed by rains which fall on the Persian mountains. The Persian Gulf is a syncline between the anti-clinal mountains of Persia and Arabia. This means that the strata exposed on the flanks of the anticlines dip under the Persian Gulf, forming a kind of basin. The rain which falls on porous limestone layers soaks into them and seeps downwards. In time the limestone becomes rather like a saturated sponge and fresh supplies of moisture force the original water up to the surface where the limestone is exposed, as in the Bahrein Archipelago. Dates, citrus fruits, and lucerne are grown and donkeys are reared. Until recently, pearling was the chief industry, but disease has attacked the oysters. Oil is now important. It was discovered in 1932 and is worked by an American company.

JORDAN became an independent state (as *Trans-Jordan*) in March 1946, with an area of 35,000 square miles and a population of 400,000. In 1950, when it assumed its present name, it incorporated much of Arab Palestine (see Fig. 17) with a population of about 700,000 (see p. 66).

East of the River Jordan, the state is crossed from north to south by the Hejaz railway and the line roughly marks off the desert to the east from the agricultural area of the west. In the latter a beginning has been made with the development of agriculture by terracing hillsides and by irrigation. The country includes part of the Dead Sea Rift Valley, potash being extracted from the waters of the sea.

CHAPTER V

THE WESTERN PLATEAUX

Turkey

Turkey in Asia consists of the plateau of Anatolia which is bounded on the north by the Canik (or Pontine) Mountains and on the south by the Taurus Mountains—both fold systems. The northern coastal plain is extremely narrow as is usual with concordant coastlines, *i.e.* where the relief runs parallel with the shore, but in the south there are the two relatively wide plains of Antalya and Adana. As most of the relief lines are from east to west, the west coast, which is discordant, has many deep running gulfs and long narrow peninsulas, while the hinterland is an undulating region of alternating ridges and valleys. The most notable of the latter is the Menderes Valley. The highest country is along the extreme eastern edge culminating in the extinct volcano, Ararat (16,000 ft.). In the south-eastern corner there is a part of the Assyrian plateau and the Syrian coastal area known as the Hatay.

There are two important areas of inland drainage on the plateau. In the western one several streams flow from the surrounding mountains into lakes, of which the largest is Tuz Golu. There are also some salt lakes. In the eastern area there is Lake Van which is 6000 ft. above sea-level. Many short and swift streams which originally rose on the Pontic and Taurus Mountains have so eroded their valleys that they have encroached on the plateau. The best example is the Euphrates which rises in Mount Ararat and makes a very winding course through the mountains, in parts of which it is separated from the Tigris by only the narrowest of ridges.

The plateau is arid and hot in summer, and bleak and windswept in winter with frequent snowstorms. Along the north coast there is an ample rainfall with a maximum in winter, as well as a considerable amount in summer when the north-east winds blow straight on to the coast from the Black Sea. Thus, at Samsun the rainfall is 28 in. with an autumn maximum. Note that this is more than that of Smyrna (20 in.) because although the latter faces west and

has the usual Mediterranean winter rainfall, it is in the "rain-shadow" of the plateau and Pontic ranges in relation to the summer winds. The plains of the southern fringe have a much lighter rainfall because owing to the configuration of the coast the plains are sheltered from the west by southward loops of the Taurus Mountains.

Much of the plateau is covered with steppe-land which is similar to the original Central Asiatic homeland of the Turks who for centuries remained a semi-nomadic and pastoral people. In recent years, however, there has been a considerable development with irrigation. Much of the south-western part of the plateau is a semi-desert, but cotton is grown in the Konya and Kayseri districts, much of it being spun and woven at the latter town, which is in the ancient province of Cappadocia.

This is a highly volcanic area, there being no fewer than 50,000 cones of extinct volcanoes. They have been much eroded by grit being blown against them with a somewhat similar effect to that of sand-paper. Hard blocks of lava have created pillars by protecting the softer sandstone beneath them. The whole of the area has been covered with hundreds of feet of volcanic ash with an upper layer of lava or pumice. Across it a tributary of the Kizil Irmak has eroded a deep valley. On the valley sides, houses have been excavated with their cellars cut in the rock-face behind them. The soil is formed of decomposed volcanic tufa and it is enriched by guano, the droppings of thousands of pigeons which live in disused churches and which, for superstitious reasons, are not killed by the peasantry. Fine crops of apricots, grapes, melons, and tomatoes are grown. Walnut wood is exported for veneer. On most of the plateau, however, the chief occupation is sheep and goat rearing, the hair of the mohair goat being particularly valuable. In the Konya and Afyon Karahisar districts the opium poppy is an important crop.

In the eastern highlands stock rearing is the chief occupation, but the completion of the railway to Lake Van and the development of the south-eastern oil-field near Siirt will do much to open up this hitherto unimportant region. The important part played by stock rearing in Turkish economy can be seen from the fact that there are 16 million sheep and 11 million goats, 3 millions of the latter being of the mohair



Above: TURKEY. THE CUBUK DAM, TEN MILES NORTH OF ANKARA. (Exclusive News Agency.)

Below: TEHERAN. (Exclusive News Agency.)



15. A TYPICAL VILLAGE IN MAZANDERAN PROVINCE. (*Exclusive News Agency.*)
Below: DAMASCUS. (*Exclusive News Agency.*)

breed. Over 60 million lb. of wool, 15 million lb. of goat hair, and 14 million lb. of mohair are clipped annually.

Most of the cultivation is carried on in the coastal areas. Thus, there are about 170,000 acres under tobacco, yielding over 100 million lb. The chief districts are Samsun in the north-east and Izmir (Smyrna) in the west. Figs and sultanas are grown in the latter area for export as dried fruit. Olive oil is produced mainly in the Aydin district in the south-west. Other crops are licorice-root, walnuts, almonds, linseed, and cotton. The last named is grown by irrigation on the Cilician Plain around Mersin and Adana on the south-east coast. Silk-worms are fed on mulberry leaves in the Bursa region of the north-west. Rice is an important crop near the mouths of rivers.

In recent years attention has been paid to exploitation of mineral wealth. There is a coal-field at Zunguldak on the Black Sea coast and it has an annual output of about 3 million tons. Chrome ore, copper, iron, lignite, lead, and zinc are also mined.

About 80 per cent. of the people work on the land, but in 1934 the Government drew up a five-year plan for the development of industries. The chief venture was in iron and steel. The furnaces at Karabuk, 100 miles inland from the coal-field, produces about 250,000 tons of pig-iron annually. There has also been much recent improvement in the transport. Prior to 1923 there was only one railway, part of the uncompleted Berlin-Baghdad line, a single track one, which crossed Turkey from Uskudar (Scutari) to the Syrian border with a branch to Ankara and another line to Izmir. Now the main line has been doubled and many other tracks have been laid linking Ankara with all the other important towns.

Ankara, the capital (population 230,000), replaced Istanbul in 1920 when the new Republican Government decided that it was more suitable as it was more central, less vulnerable to attack, and more truly Turkish in character. Izmir (population 200,000) was originally a Greek colony, but by agreement between the two Governments a great exchange of Greeks and Turks took place so that there are now only a few thousand Greeks in the whole country.

Great changes have taken place in Turkey since the new Republic was founded, for serious efforts have been made to

"Westernise" the country. Thus, in 1928 Latin characters were substituted for Arabic and all Turks were compelled to use the new method of writing. Women were ordered to cease wearing the veil. Muhammadanism ceased to be the official state religion, and no priests of any religion are allowed to wear clerical garb except when conducting services.

Persia (Iran)

Beyond the volcanic knot of Ararat, the second great plateau, Iran, spreads across to the borders of Afghanistan and India. This forms the basis of Persia, but in the south-west the country contains quite a large area of the Mesopotamian trough, the Shatt-el-Arab forming part of the boundary. Narrow coastal plains skirt the Persian and Oman Gulfs and the Caspian. Separating the plateau from the Mesopotamian lowland are the successions of fold ranges, the Zagros Mountains. Along the northern rim are the Elburz Ranges, partly volcanic. Secondary ranges cross the plateau. On the western half of the plateau there are several fresh-water lakes, but on the drier eastern half there are only salt lakes. In this eastern half there are the great "dashts" (semi-deserts) of Kavir and Lut where patches of scrub are scattered about the sand and boulders. In spring time there is a carpet of flowers over much of the area, but there are some inland islands of true desert, *e.g.* "The Valley of the Shadow of Death."

Petroleum is by far the most important product. The chief oil-field is in the foothill country south-east of the Zagros Mountains and the concession was formerly held by the Anglo-Iranian Oil Company, but has now been nationalised. Production increased from 9 million tons in 1939 to over 32 million tons in 1950, but practically ceased in 1951 on the withdrawal of the Anglo-Iranian Oil Company. A pipe line runs from the Sulaiman Wells near Shushtar down the Karun Valley to Abadan, the world's greatest oil-refining centre and oil port on the Shatt-el-Arab, which has grown from a poor village to a town with a population of 40,000. The exploitation of this great oil-field has done much to further the progress of Persia. Millions of pounds have been paid to the Government in royalties, and communications, schools, and health services have been provided for

the workers by the company. U.S.S.R. is interested in potential oil-producing areas in Azerbaijan.

This economic interest has led to political interest and to interference in the internal affairs of Persia. That country seems fated to be divided into "spheres of influence." At the beginning of this century it was Russia in the north and Britain in the south. Now the latter has been joined by U.S.A. although there is no recognised division into spheres of influence in these days. Other mineral products are coal, salt, and turquoise. The first is mined in the Mazanderan district of the Elburz and supplies Teheran with fuel. Salt is obtained from the eastern lakes, and turquoise, a beautiful blue stone, is used for the ceilings of mosques.

Wool is the second most important product. Much of it is obtained from fat-tailed sheep. Many fine carpets are woven at Tabriz and Hamadan in the west and Kerman in the east, and these form a chief export next to petroleum. Many of the sheep are reared in the wild mountain country of the south-west where the Bakhtiari tribesmen are still under the control of feudal chieftains (Khans). Cotton is grown in the Isafahan area where there are woollen and cotton mills. There is a considerable production of tobacco and the cultivation of tea is on the increase in Northern Persia. The great need is for the development of communications. The recent war helped in this direction because the dire need of Russia for supplies from her Western allies led to a railway being built from Banda Shahpur on the Persian Gulf to Bandar Shah on the Caspian.

Teheran, the capital, is situated in the northern part of the country in the foothills of the Elburz Mountains. It has a population of over 800,000 (1946), many of whom are employed in glass works, match factories, chemical, small arms, and ammunition works. The population has increased rapidly in recent years owing to the establishment of these industries. This has led to the abandonment of villages and farms in the surrounding countryside. Tabriz (population 214,000) is the capital of the province of Azerbaijan which has had a strong Home Rule movement and affinities with the Soviet Republic of the same name. Pahlevi, on the Caspian, is a centre of the sturgeon fishery. The total population of Persia is about 10 millions, of whom about

3 millions are nomads. As the area is nearly 700,000 square miles, the average density is 19 per square mile.

Afghanistan

The third plateau country, Afghanistan, is bisected by the Koh-i-Baba Range which exceeds 17,000 ft. and is continued in the extreme north-eastern corner as the Hindu Kush. To the south-west is the basin of Seistan which is drained by a series of rivers of which the Helmand River, flowing into a large depression on the Afghan-Persian border, is the most important. The northern section has a general slope to the Amu Daria Basin, which river forms part of the boundary with the U.S.S.R. Many streams flow northwards but most of them become swallowed up in the sands in the foothills. In the extreme east there is a relatively small but important area drained by the Kabul River, a tributary of the Indus. In the south and east two crops a year are grown. In the spring, wheat, barley, and lentils are harvested, and in the autumn, rice, millet, sorghum, tobacco, sugar-beet, and maize.

The total area is about a quarter of a million square miles and the population is about 10 millions, so that the density is 40 to the square mile. Much of the country is too mountainous and too dry for cultivation but there are quite extensive plains and valleys which are irrigated, some of them from wells, and which yield good crops of barley, fruit, and vegetables.

Large numbers of fat-tailed sheep are reared, providing the chief meat food. The fat in the tails yields grease, and the wool and sheepskins are used for clothing. "Persian lamb skins" (Karakul) are exported and fetch high prices on the fur markets of the West. Many of the shepherds are nomadic, using in summer the pastures of the Hindu Kush and spending the winter on the more sheltered plains of North-West India.

There are many signs of mineral wealth but, as in Persia, lack of transport facilities has hindered its development. It is known that there are rich deposits of copper in the north and plenty of good quality coal on the northern slopes of the Hindu Kush. There are two known oil-fields, one in the west near Herat and the other in the north. There is a small output of silver and some gold is mined near Kandahar. In

Badakshan in the extreme north-east the world's finest lapis lazuli is mined. Other worked minerals are iron, lead, asbestos, mica, and sulphur.

Some efforts have been made to develop industries and to encourage the nomadic element of the population to settle down. Hydro-electric power has been developed in the Kunduz Valley of the Hindu Kush for the cotton mills and sugar refineries of the new workers' city of Pul-i-Khomri (population 10,000) which is mainly populated by former nomads. Incidentally, the cotton and sugar-beet are grown locally.

There are no railways in the country and only a few good roads on which some three thousand lorries are used. Most of the transport is by camel and pony. The country is very isolated, the only important link with India with which most of the trade is carried on being by the road from Kabul to Peshawar across the Khyber Pass. Other roads are: from Herat, one of the most important route centres in Asia, to Kandahar and Kabul. This road skirts the southern edge of the central highlands and passes mainly across desert. Then there is the road from Kabul across the Hindu Kush by the Shibar Pass to Mazar-i-Sharif, the capital of Afghan Turkistan, a road famous for the beautiful scenery through which it passes and known as the "Gateway to the North." Finally, a triangle is completed by the road from Herat to Mazar-i-Sharif via Maimana, which follows the old silk-caravan route.

The capital, Kabul, has a population of 120,000, some of whom work in small factories making leather goods, buttons, matches, and woollen goods. Although the country is inhabited by several different racial types speaking different languages there is no disunity, for all are united by their common Moslem faith and for a similar reason to that which unites the peoples of Switzerland, *i.e.* the feeling that powerful neighbours are covetous of their land.

CHAPTER VI

THE LEVANT

The countries along the south-east shores of the Mediterranean are known as Levantine—"of the Rising Sun."

Syria and the Lebanon

Syria and the Lebanon consists of a series of parallel belts which cross the country from north to south. Bordering the Mediterranean coast there is a mountainous region and to the east there is a wide plain extending across the middle Euphrates Basin to the Tigris. Owing to its position on the narrow neck of land between the Euphrates and the Mediterranean it has long been an important centre of routes and meeting place of peoples travelling between Asia Minor and Egypt, Mesopotamia and the Mediterranean. Hence it has an extremely cosmopolitan population; there are twelve races and thirty religions. It has become extremely important again since the development of air and road transport because it is on the shortest route between Damascus and Baghdad. Because of the very numerous occupants and passers-by there is a great variety of architectural types which have made it an extremely interesting area to archaeologists.

The first sub-division is the extremely narrow coastal plain. It was the home of sea trading Phoenicians, as we are reminded by the sites of Tyre and Sidon. Nowadays Beirut (population 234,000) is the chief coastal settlement. It is not only the principal port but also the cultural centre of Syria. Tripoli (population 72,000) is the only other modern port. It is likely to gain in importance at the expense of Haifa now the oil terminal has been transferred. Sidon is also an oil port.

The chief occupation of the coastal plain is the cultivation of Mediterranean fruits, using the streams from the Lebanon Mountains for irrigation. There are about 250,000 acres under olives; 150,000 acres under vines; 30,000 acres under figs; and 15,000 acres under oranges, lemons, and mandarines, a small fruit very like a tangerine. Bananas and apricots are also grown, whilst in the area between Latakia and Banias good quality tobacco is produced.

The Lebanon Mountains backing the coastal plain were once covered with the famous cedars. These disappeared long ago, as cedar-wood proved such valuable building timber that the Phoenicians felled and exported much of it (*e.g.* to Solomon in Palestine for the Temple). Half-way up the western slopes there are villages perched on terraces cut from the hillsides, and many of their inhabitants (Ansariyeh) are fair-haired and blue-eyed, probably descendants of Crusaders. The villages are surrounded by vineyards and mulberry trees. In winter the summits, some of which exceed 8000 ft., are snow covered.

Between the Lebanon and Anti-Lebanon lies a rift valley, the extreme northern end of the "Great African Rift." In its northern part it is drained by the Orontes and in the south by the Leontes. On the plain of the Bekaa good crops of wheat are grown. Like many Mediterranean lowlands this plain is malarial, for the *Anopheles* or malaria-carrying mosquito breeds in stagnant waters. The presence of malaria is a great scourge because in most cases it is recurrent, *i.e.* once a person has been infected by the germ, it breeds in his blood and he is liable to periodic outbursts. At each one he develops a raging fever and has to cease work. In any case he never recovers his full energy, so that in malarial countries a large proportion of the population is lethargic.

In the Bekaa, methods are still very primitive, *e.g.* winnowing is done by hand. The chief towns are Hama (70,000) and Homs (100,000), both on the "Pilgrims' Railway" built before the First World War to link Turkey with Mecca. Built by German capital, ostensibly to carry Moslem pilgrims, it was in fact a plan to transport German troops to the Suez Canal and Red Sea. The railway enters Syria at Aleppo and follows the Rift Valley for some distance, leaving it to make for Damascus. Short branches link it with the coast at Tripoli and Beirut.

The Anti-Lebanon is a rugged and dry area with villages along spring line oases. Sheep and goats are reared on the poor pastures. To the south-east is the ancient caravan route centre of Damascus, one of the original "Seven Earthly Paradises" of the Arabs, which is not surprising for it is situated in a large oasis with beautiful trees and irrigated gardens, a refreshing sight to desert wanderers. It is still

an important trading centre with its great bazaar where may be bought copper and silver ware, carpets, shoes, books, swords, spices, and sugar. It makes ivory combs, leather goods, and a glue made from goats' horns, camels' feet, and mules' hoofs. A similar centre in the north, Aleppo, manufactures silk and silk goods. In these and other oases apricots are grown and barley is the chief food crop. To the south of Damascus lies the Jebel Druse, inhabited by the Druse sect of whom there are some 160,000. They speak Arabic and they have a peculiar religion which is a mixture of Christianity, Judaism, and Muhammadanism. Their home is a great basaltic plateau rising to nearly 6000 ft. On their fertile volcanic soils they grow grapes, olives, and tobacco. They also rear silk worms. The altitude ensures sufficient rainfall for these products.

The remainder of Syria consists of the poor steppe and semi-desert, by far the largest area but sparsely populated

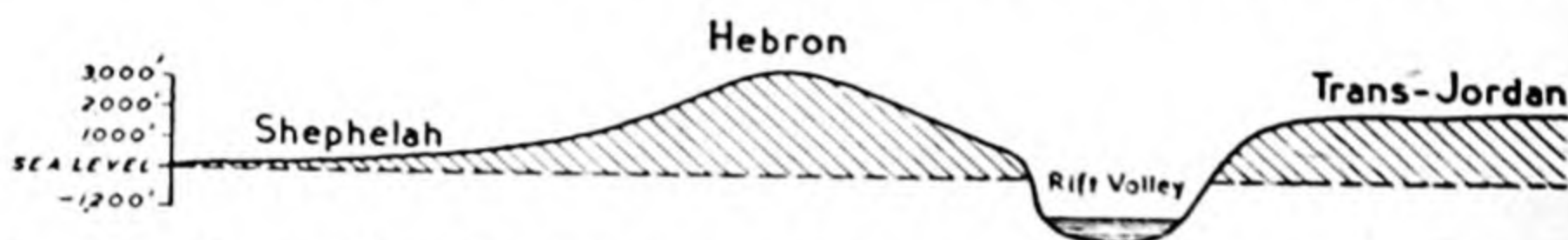
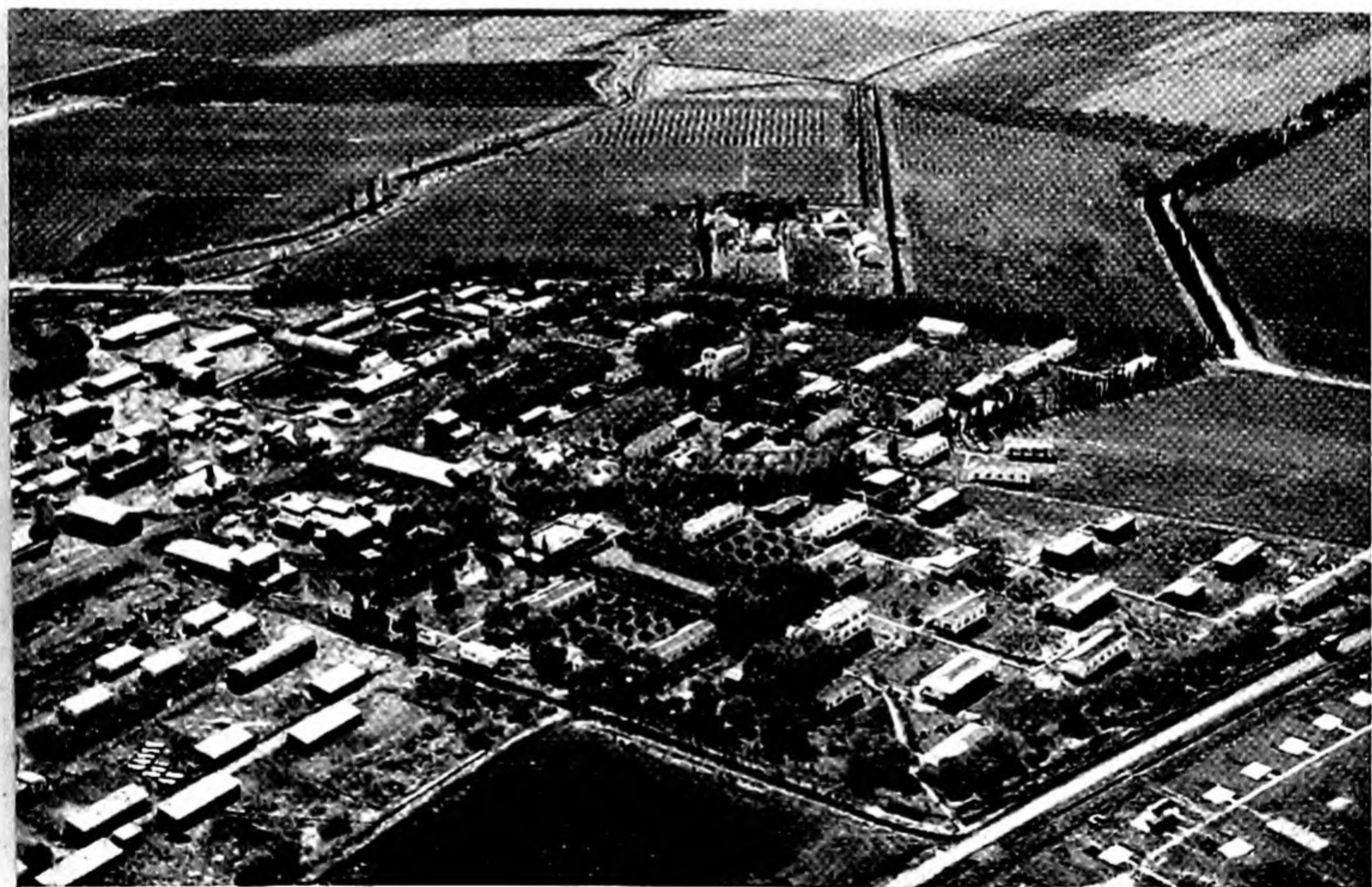


Fig. 15. EAST-WEST SECTION ACROSS PALESTINE AND THE RIFT VALLEY.

by semi-nomadic tribes who rear most of the $2\frac{1}{2}$ million sheep, $1\frac{1}{2}$ million goats, and 50,000 camels. The tribesmen in many ways lead the life of their ancestors, but the chieftains drive about in high-powered cars. It is in this region that vegetation springs up after the occasional rains. Nomadic herdsmen drive their herds to the districts where rain has fallen that they may take advantage of the temporary grazing.

Israel

The name Palestine is derived from the older name Philistia or "Land of the Philistines." Strictly speaking, this should apply only to the coastal plain, once the home of the agricultural people who irrigated the valleys of several streams which, like miniature "Niles," cross the barren coastal belt. It was these people who proved such stubborn enemies of the Jews. The modern representatives of the latter, now that they have assumed full control of their country, have renamed it Israel. Behind this coastal plain the land slopes gently



Above : TEL-AVIV, THE CAPITAL OF ISRAEL. (Exclusive News Agency.)

Below : A JEWISH COMMUNAL SETTLEMENT. (Jewish Agency.)



Above: LEBANON. A FAT-TAILED SHEEP. (*Exclusive News Agency.*)
Below: TIBERIAS AND THE SEA OF GALILEE. (*Donald McLeish.*)

upwards towards the interior until the flat topped Plateau of Judea is reached. This consists of limestone which is very porous so that, although there are about 12 in. of rain in an average year, there are very few streams, for the water seeps into the ground. The vegetation is a rather thin grass.

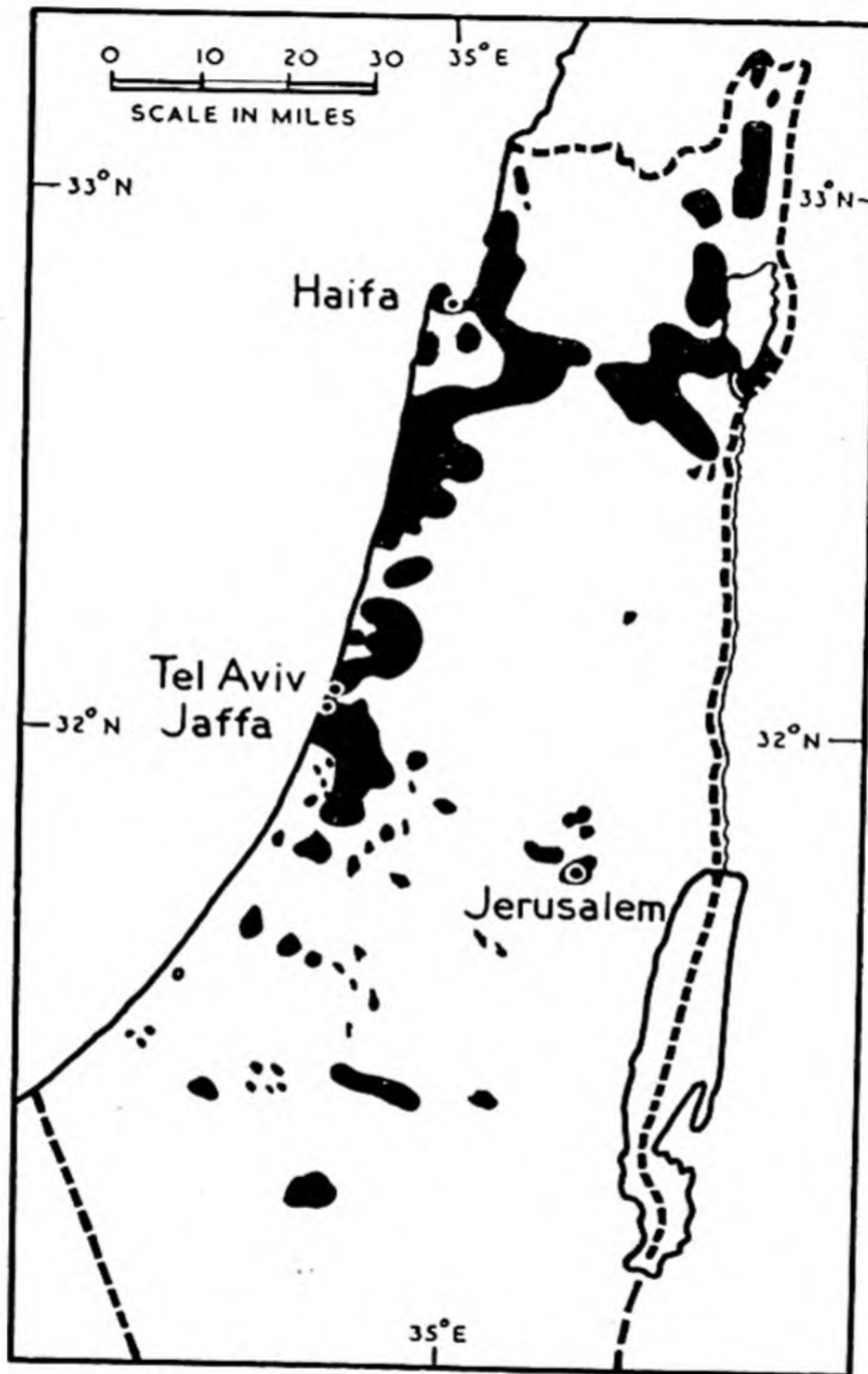


Fig. 16. PALESTINE—JEWISH COLONIES.

In places hills rise above the general level, and it was on a group of seven of these that the Jews built their capital—Jerusalem—no doubt because, as a military people, they realised the strategic value of its commanding position.

To the south the plateau widens and the rainfall decreases. To the north-west it tapers, to form a steep-sided narrow

ridge ending in Mount Carmel which forms a cape, the only break in the coast line. This ridge separates one fertile lowland, the Plain of Philistia, from another, the wider Plain of Esdraelon, which extends from the Mediterranean to the Sea of Galilee. On the east the plateau drops sharply for some 2000 ft. to the flat and wide base of the Dead Sea Rift Valley and is faced by an equally steep cliff on the opposite side. The Arabs have given this valley the very descriptive name El Ghor—the Ditch. It forms an obvious natural boundary to the east. In the extreme north-west the land rises beyond the Plain of Esdraelon to the mountains of Upper Galilee, the southern end of the Lebanon system.

There have been Jewish colonies in Palestine since the late 19th century, but it was not until after the end of the First World War that there was any great movement of Jews back to the land of their ancestors. In 1917 the British Government issued what has become known as the Balfour Declaration, in which they pledged their support of the idea of a National Home for the Jews in Palestine but also stated that this must not clash with the interests of the people already living there, *i.e.* the Arabs.

The population of Palestine in 1918 was about 500,000, of which 150,000, or 30 per cent., were Jews and 70 per cent. were Arabs. In June 1951, the population of Israel was approximately 1,500,000, of which over 1,300,000, or 85 per cent., were Jews. This great difference is largely accounted for by the fact that between 1918 and 1951 about 1,200,000 Jews entered Palestine, nearly half of them since 1946. The mainly Arab areas of Samaria and Judah, formerly part of Palestine, are now included in the state of Jordan. They contain some 700,000 Arabs, of whom more than half are refugees from Israel.

Any Jew can claim the right to enter Israel and immigration continues at the rate of about 15,000 per month. The homeland of the 240,000 Jews who entered in 1949 are given below.

HOMELAND OF JEWS ENTERING PALESTINE IN 1949

Middle East ..	28.8 per cent.	Czechoslovakia ..	6.7 per cent.
Poland ..	20.2	Hungary ..	2.4
North Africa ..	16.8	Other Central European	3.0
Balkans ..	16.1	Other countries ..	5.5

Over all the years between the two World Wars Poland sent 41 per cent. of the total. The reason was that of all the countries in Europe having a large Jewish population, Poland was the poorest. At first the Arabs did not oppose this immigration, but as time went on their leaders began to agitate against it and there have been many clashes. Sometimes these have been started by the Arabs when they felt that too many Jews had been allowed in, and sometimes they were started by the Jews when they felt that too many were being kept out.

Let us now see what has been done since 1918. Many Jewish agricultural colonies have been set up in the Plains of Sharon and of Esdraelon. They are worked on a system known as collective farming whereby all do their own particular jobs, most on the land but others at their trade. The profits are then shared by all. Before these colonies could be started much work had to be done. Streams choked by reeds had to be cleared so that they might be used for irrigation. There was a double advantage in this because the clearing led to the wiping out of malaria, as the mosquitoes responsible for spreading it could no longer breed. Towns had to be planned and built, and here the newcomers had the great advantage that they were starting from nothing and so were able to build really model settlements. Unfortunately they had to have walls around them and watch towers, for the colonists knew that they must expect trouble at any time from the Arabs. The money for all these buildings and irrigation schemes was collected by the Zionist movement all over the world. This movement also bought the necessary land from the Arab farmers. The latter, who had been getting a poor living by growing thin crops of barley and by keeping a few animals, thought they had the better of the bargain until they saw the fine crops being grown by the newcomers. Then they grumbled and their leaders said that they were being dispossessed of their best lands through ignorance and that soon there would be nothing but the poorest land in Arab hands. The Jewish reply was that the Arab farmers never would have made anything better out of their land for they were lazy and used only wooden ploughs which just scratched the top of the soil, and all their methods were similar to those used in Biblical times, whereas they,

the Jews, farmed on modern lines using up-to-date implements and methods. Furthermore, they said that the Arabs were really much better off because not only had they been paid for their land but also many thousands of them had found steady jobs as lorry drivers, dock workers, etc. We must remember, too, that at the back of it all there is a great deal of religious feeling. The Arabs dislike the Jews as infidels, and the Jews have grievances against the Arabs, the strongest being that they have built a mosque right over what is supposed to be the site of Solomon's Temple.

Whatever the rights and wrongs of the case may be there is no doubt that by their modern methods of farming the Jews have greatly improved the economic condition of the country. Olives are grown, *e.g.* on the Mount of Olives and in many other coastal districts, the oil being partly used in the soap industry. Jaffa oranges have long been famous, having been grown in the first place by one of the original colonies near that ancient port, but nowadays their cultivation is more widespread. In addition grapes, grape-fruit, figs, and strawberries are grown. In the sheltered hot valley of the Jordan pineapples and bananas are produced. The chief field crops are clover, alfalfa, and maize, mainly for silage. Silage is a method of preserving green crops intended for fodder during a season when animals cannot get food from natural pastures. When harvested the crops are stored in concrete or metal cylindrical towers, layers of green crop being placed between layers of molasses, a treacly by-product of sugar. In Palestine this mixture is brought out during the dry summer. On the higher lands there are large fields of wheat and barley and at harvest times the great combine harvesters can be seen at work. In addition there are many dairy and poultry farms. The chickens of the latter each lay about 250 eggs a year compared with the average of 70 laid by those kept by the Arabs, because the Jews are scientific farmers and pay much attention to questions of strain, methods of feeding, and provision of proper poultry houses. Re-afforestation has played a big part in restoring economic prosperity. Thus the great Balfour Forest was planted partly to aid soil conservation and partly in the hope that it would increase the rainfall.

The Jews are pinning great hopes on what is known as the J.V.A. Scheme, *i.e.* the Jordan Valley Authority, which plans

to use the waters of the Jordan for the irrigation of much of the drier parts of Palestine. The Jordan is a very swift river which accounts for its name ("The Descender"). It rises in Lake Huleh, a papyrus-covered lake around whose shores live primitive Arabs. There is one Jewish settlement, Hulata, inhabited by fishermen. Then the river widens out to form Lake Tiberias (Sea of Galilee) upon whose shores stands Tiberias, a winter health resort with mineral springs. Tributary streams plunge over the edge of the Rift Valley, and one of these, the Yurmak, with a fall of 200 ft., has been harnessed to provide most of Palestine with electric power. J.V.A. visualises the building of more dams in the country to the north of the Dead Sea. There is also a plan to pump salt water by a canal from Haifa to the Jordan Valley and so to the Dead Sea to prolong the chemical industry. Salts are extracted, the chief one being potash, which is of great value as a fertiliser. It was from the profits of this industry that the hydro-electric project was financed as well as the building of roads and railways. Further projects of J.V.A. are—(a) the draining and reclaiming of some thousands of acres of marshland which surround Lake Huleh, thus not only bringing more land into cultivation but also destroying one more malarial area. It was once considered that the moist heat and malaria of the Rift Valley would prevent settlement on any large scale, but now the lowland is scattered with many village communities producing good crops of grain and such unaccustomed fruits as avocados and papayas, as well as those already mentioned.

(b) The irrigation of the arid Negeb of Southern Palestine, by using the Jordan waters. Already there are several settlements of an experimental nature in this arid three million acres, where it is claimed that a population of 55,000 could be increased to half a million. In Roman times, indeed, there were several flourishing cities, but these fell victims to Arab raiders and the surrounding lands were devastated by soil erosion and sand encroachment. Now by using the small rainfall, dew, and surface water, and by boring wells, fruit, vegetables, and fodder crops are grown. Dry farming is also yielding results and afforestation has proved successful as a means of protecting crops and soil from the wind.

Factory industries are well under way. Soap is made at Tel Aviv, and in the Jordan Valley fruits and vegetables are canned at Ashdod; Yascov and Afikim make wooden boxes and plywood. In addition there are oil installations at Haifa and potash works at the northern end of the Dead Sea.



Fig. 17. THE PARTITION OF PALESTINE.

Increasing trade in the years between 1919 and 1939 necessitated the improvement of shipping facilities because lighters had to be used to carry the imports and exports from and to ships waiting off shore. Artificial harbours had to be made because, as can be seen from the map, the coastline of Palestine is almost unbroken. Two new ports were opened and equipped with all the latest gear for handling cargo.

Haifa was developed to serve the northern fertile plain of Esdraelon. It is the terminus of an oil pipe-line from the oil fields of Iraq. Owing to the troubled political situation the future of Haifa as an oil port must be considered as uncertain and Tripoli (Lebanon) has been developed, although it is merely a "lighter" port, *i.e.* it has no harbour, all goods having to be transhipped by barges. The southern port, Tel Aviv, which serves the coastal plain and Jerusalem, has had an even more rapid growth. It was built next to the ancient and Arab port of Jaffa and together with Jaffa now has over 350,000 inhabitants. It was selected as capital by the Provisional Government of Israel, but in January 1950 Jerusalem was proclaimed as capital by the Knesset. Jerusalem, by the partition of Palestine, was divided between the states of Israel and Jordan. The population of the Israeli portion is 130,000.

All this has been achieved despite the frequent clashes between Arabs and Jews. According to the United Nations scheme the land was to have been divided between the Arabs and the Jews. The former would have occupied the north-western and south-western portions of the coastal plain together with much of the plateau, whilst the latter would have received the central part of the coastal plain, where most of their irrigation colonies are placed, together with the Sea of Galilee—Dead Sea region, with its hydro-electric and agricultural development, and the Negeb in the south, about which they have high hopes of development by irrigation. The Jews, however, set this decision aside and drove the Arabs out of much of the area allotted to them. Tens of thousands have had to camp in the deserts of Jordan, and thousands perished after suffering miseries of heat, cold, and disease.

Cyprus

The name Cyprus is derived from the Phoenician *Kypru* which means copper. The island is 60 miles from the Syrian coast and is visible from there on most days in the clear Mediterranean air. The Phoenicians colonised Cyprus and worked the copper mines. Cyprus has had a very varied history, having been ruled by Greeks, Persians, Romans, Crusaders, Venetians, Turks, and British.

The population (nearly 400,000) is cosmopolitan, consisting mainly of Greeks, Armenians, and Turks. The area is about 3500 square miles, so that the density is about 114 to the square mile.

A large proportion is mountainous. A long, narrow fold range forms the northern coastal area including the peninsula which points finger-like towards the mainland. In the south-west corner there is a higher and wider mountain mass which rises in Mount Troodos to over 6000 ft. In the south-east there is a fairly large and flat lowland—the Plain of Mesaoria—which has been described as a perfect natural aerodrome.

The climate is typically East Mediterranean. The annual rainfall averages just over 20 in. at sea-level. It is thought that it was greater in the past before the forests were destroyed as it has been estimated the removal of the forests of a country causes a decrease of 5 per cent. of the rainfall. In Cyprus the mountain sides were once densely wooded but towns-people felled most of the trees for fuel. Young trees are killed by goats which destroy the bark and nibble off the young shoots. There are some 200,000 goats on the island and there was much resentment amongst their owners when the British reserved 600 square miles for re-afforestation, thus depriving them of grazing land. However, many of the former goat herds are now employed as foresters. The lowland is a natural grassland with a mixture of olive trees, cypresses, and eucalyptus trees. Here again there has been much soil erosion.

The chief occupation is farming, but much of this is of a very primitive kind. The chief crops are olives, grapes, and carob nuts (locust beans). The olives are knocked down from the trees and primitive presses are used to extract the oil. Oranges, tangerines, and grape-fruit are grown in the Famagusta and Nefka districts. Tobacco is a general crop, and cotton, wheat, potatoes, and flax are being increasingly grown. As well as the goats there are some 300,000 sheep, so that goat bells and shepherds' pipes are commonly heard in the mountains.

Copper and iron pyrites, asbestos, gypsum, and a little chrome and gold are mined. There are important sponge fisheries, the work being done in the summer months. There are some old-established industries such as the spinning and

weaving of silk. Lace is made at Lefkara. Ivory nuts are imported and from these artificial teeth and buttons are manufactured for export.

The chief towns are situated on the south-east coast and on the Mesaoria Plain. Nicosia, the capital (population 28,000), is situated at the inland apex of the plain, and Larnaca (13,000), Limasol (17,000), and Famagusta (10,000) are ports. Strategically Cyprus has become very important to Britain, especially with the withdrawal of forces from Egypt. Malaria was very common in Cyprus but, since the War of 1939-45, modern methods of mosquito control have eliminated it.

CHAPTER VII

THE INDIAN SUB-CONTINENT: GENERAL

This great sub-continent has an area of over $1\frac{1}{2}$ million square miles and a population of over 437 millions. Between 1931 and 1951 the population increased by 99 millions, or nearly 30 per cent. This huge population is divided into so many racial divisions, speaks so many languages, and professes so many religions, that a map showing any of these features looks like a patch-work quilt. Indeed, there was no concept of India as a single country until the British introduced the idea, as is shown by the fact that there was no native name for the area. The name India is ours and we derived it from the Greek.

There are three main relief divisions. To the north-west, north, and north-east there is the great mountain barrier of fold ranges which has had a far more isolating effect upon the sub-continent than the open boundary between Europe and Asia has had. Apart from relatively small Mongol penetration by very difficult routes in the eastern parts, the only land invasions have taken place through the Khyber Pass in the north-west corner and, to a lesser degree, through the Bolan Pass. Very little of this mountain rim is included within the boundaries of India or Pakistan except in the north-west corner where the state of Kashmir includes, not only the Himalayan Ranges, but also extends beyond the Upper Indus Valley to the Karakoram. In the north-east, indeed, the independent states of Nepal and Bhutan encroach upon the Ganges Lowland.

Parallel to the first region runs the Indo-Gangetic Plain, a synclinal lowland which acts as a natural drainage trench into which the waters of the surrounding uplands pour. The western part is drained by the Indus. In the upper basin five rivers flow across the undulating foreland of the Punjab ("Land of the Five Rivers"). They are the Indus, Jhelum, Chenab, Ravi, and Sutlej. They all converge in the south-west to form the Lower Indus which

winds its way to its great delta. To the east of the Sutlej a "saddle" divides the Indus and the Ganges Basins. Across this saddle flows the Ghaggar which loses itself in the Thar. Draining the eastern part of the saddle are the Ganges and Jumna which converge on each other and join at Allahabad, well on the southern edge of the plain. A whole series of

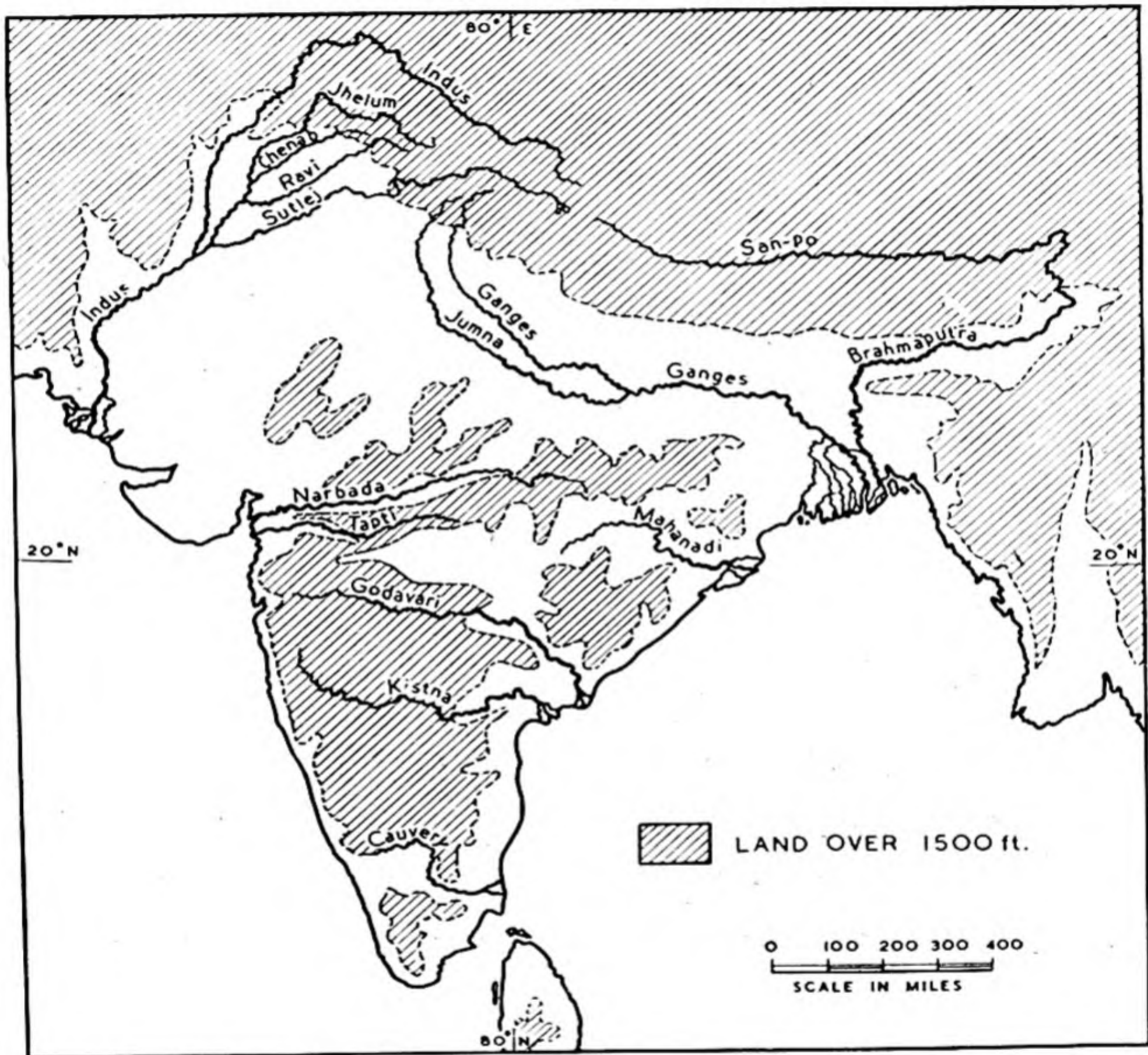


Fig. 18. INDIA—RELIEF AND RIVERS.

tributaries including the Gumti, Gogra, and Rapti, flow in a south-easterly direction from the Himalayas to join the Ganges between Benares and Patna. At the eastern end of the plain two rivers flow through the gap between the Rajmchal Hills of Bihar and the Khasi Hills of Assam. The Ganges and Brahmaputra form a common delta with a great number of distributaries at the northern end of the Bay of

Bengal. Along the mouths there is a belt of mangrove swamps known as the Sunderbans. The Brahmaputra rises as the San-Po quite close to the source of the Sutlej, and after flowing eastwards breaks its way through the Himalayas to the Gangetic Plain. Because it has received the silt of so many powerful mountain streams which have borne their loads over, perhaps, millions of years, only to drop them when their flows are checked on reaching the lowlands, most of the Indo-Gangetic Plain is covered in depth with alluvium of

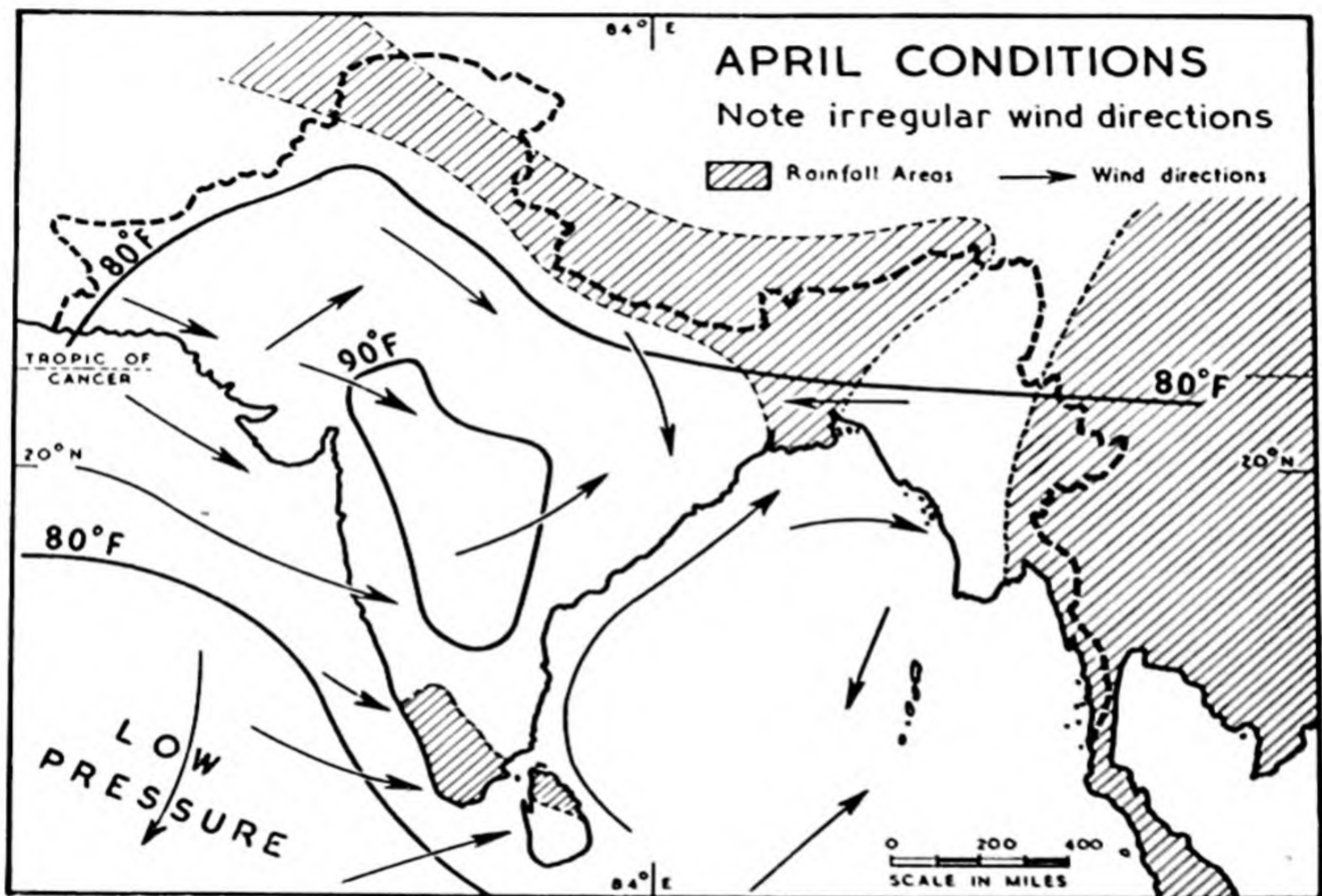


Fig. 19.

great fertility. Provided there is adequate rainfall or that there are facilities for irrigation, high crop yields are obtained. Throughout the lowland the winters are warm enough to enable cultivation to be carried on. This has led to its becoming the largest continuous area of intensively farmed land in the world. The differences in crops between the different parts are caused partly by differences in drainage and partly by variations in rainfall. If we travel from the Bay of Bengal along the lowland to the Arabian Sea we start with the great delta of the Ganges-Brahmaputra with a

rainfall of over 80 in. This is followed by the better-drained Middle Ganges Valley with a rainfall of 40 in.-60 in. Then comes the Upper Ganges and Punjab regions which are relatively high and have 10 in.-20 in. of rain. Finally, the Lower Indus Valley has less than 5 in. of rain and is in many ways similar to Egypt with a narrow fertile belt along the river, bordered by desert.

The Peninsula of India consists mainly of the Deccan, an ancient massif which has been tilted from west to east and

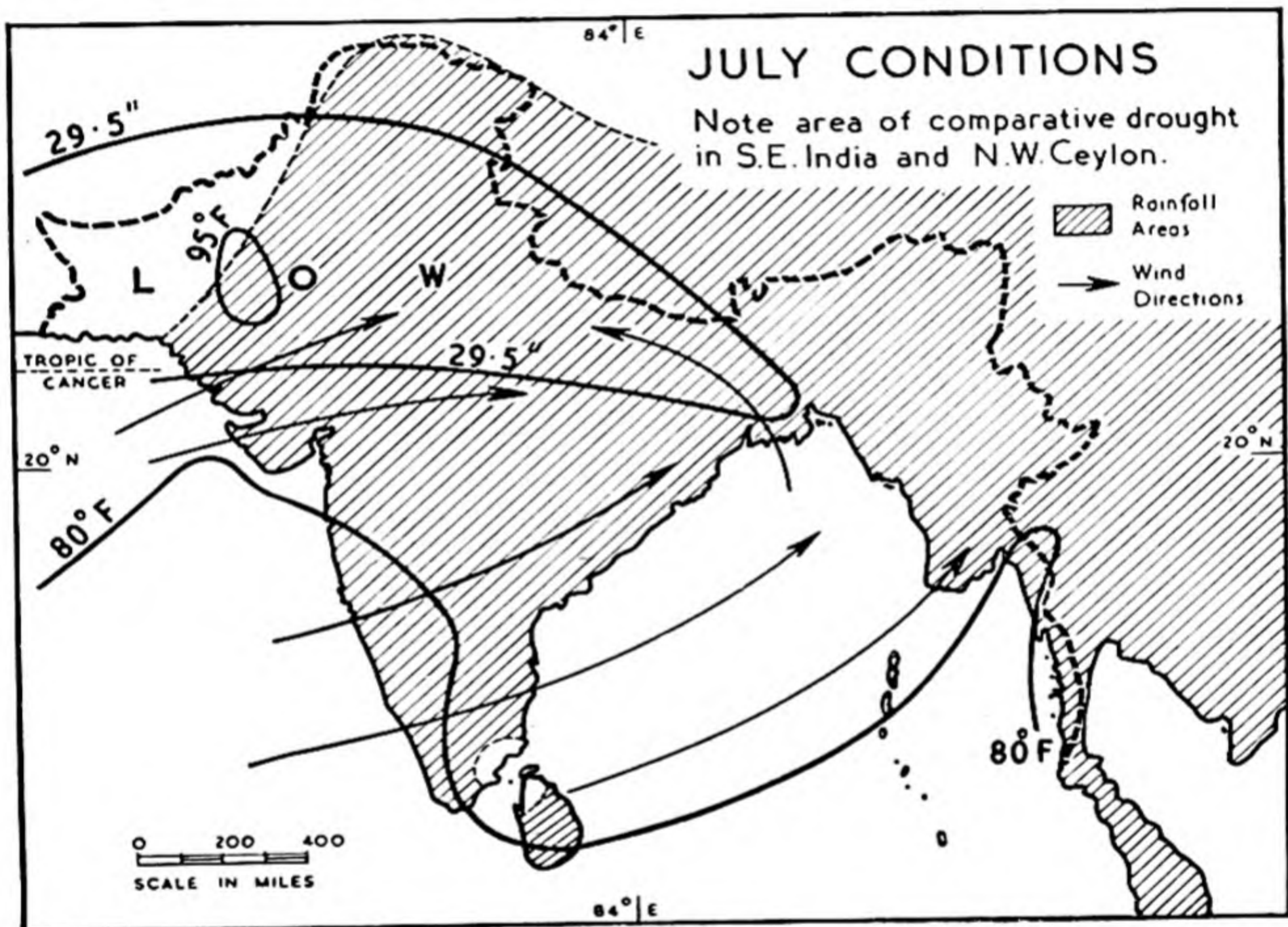


Fig. 20.

which forms a great triangle tapering southwards. Its higher western edge is known as the Western Ghats. The plateau is drained by a series of rivers which rise along the northern and western edges and flow to the Bay of Bengal. Their basins conform fairly closely to a pattern. A number of lesser streams drain circular basins and converge upon the main river which has cut a gorge through the Eastern Ghats to descend on to the coastal plain where it flows to the sea through its delta. The chief rivers are the Mahanadi, Godavari, and Kistna.

Geologically the plateau consists of very ancient crystalline rock, but a large part of the north-west is covered with volcanic material, mainly basalt. In the extreme south the Nilgiri Hills rise to over 8750 ft. A low ridge, the Palghat, links these to the Cardamon Hills. The south-east corner of India consists of the basin of the Cauvery River which repeats the features of the Deccan rivers but at a lower altitude.

The northern edge of the Deccan is formed by a line of mountain ranges including the Mahadeo and Maikal Hills.

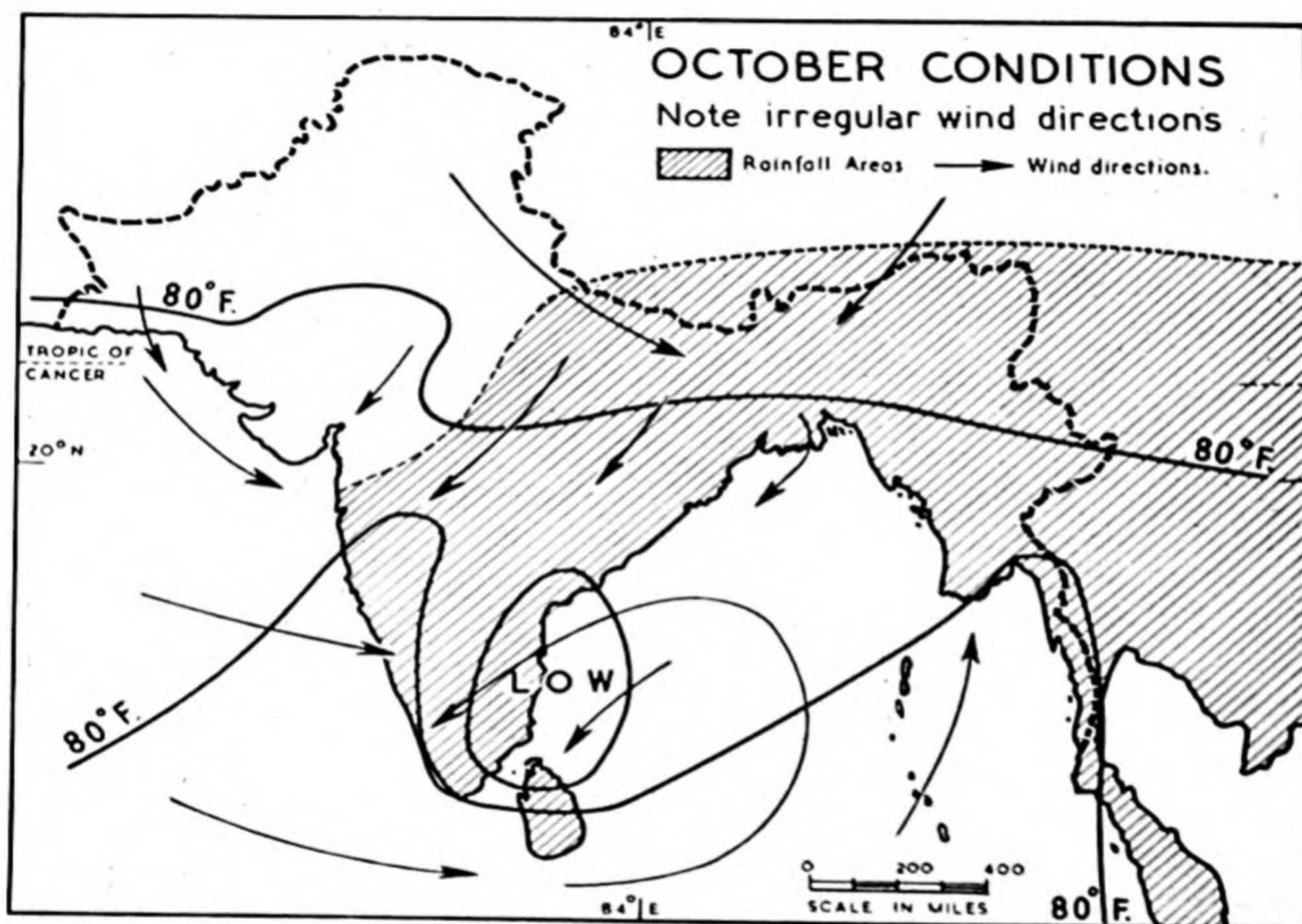


Fig. 21.

Beyond this there is a trough drained in its western part by the Narbada and in its eastern by the Rohtas tributary of the Ganges. North-westwards the land rises again to the Aravalli Hills which overlook the Thar.

Climate

India's climate shows the normal features of the monsoon lands, as indicated on pp. 27-30. The relief and configuration cause certain modifications of detail. Thus from May to

early September there is a general stream of air from south-west to north-east and the rainfall spreads from south to north. As the moisture laden air reaches the steep edge of the Western Ghats the sudden forced rise causes cooling, and so there is a belt of heavy rainfall along the west coastlands (over 80 in.). The rainfall decreases across the Deccan (20 in.-40 in.) but further supplies of moisture are absorbed over the Bay of Bengal so that another belt of heavy rainfall occurs

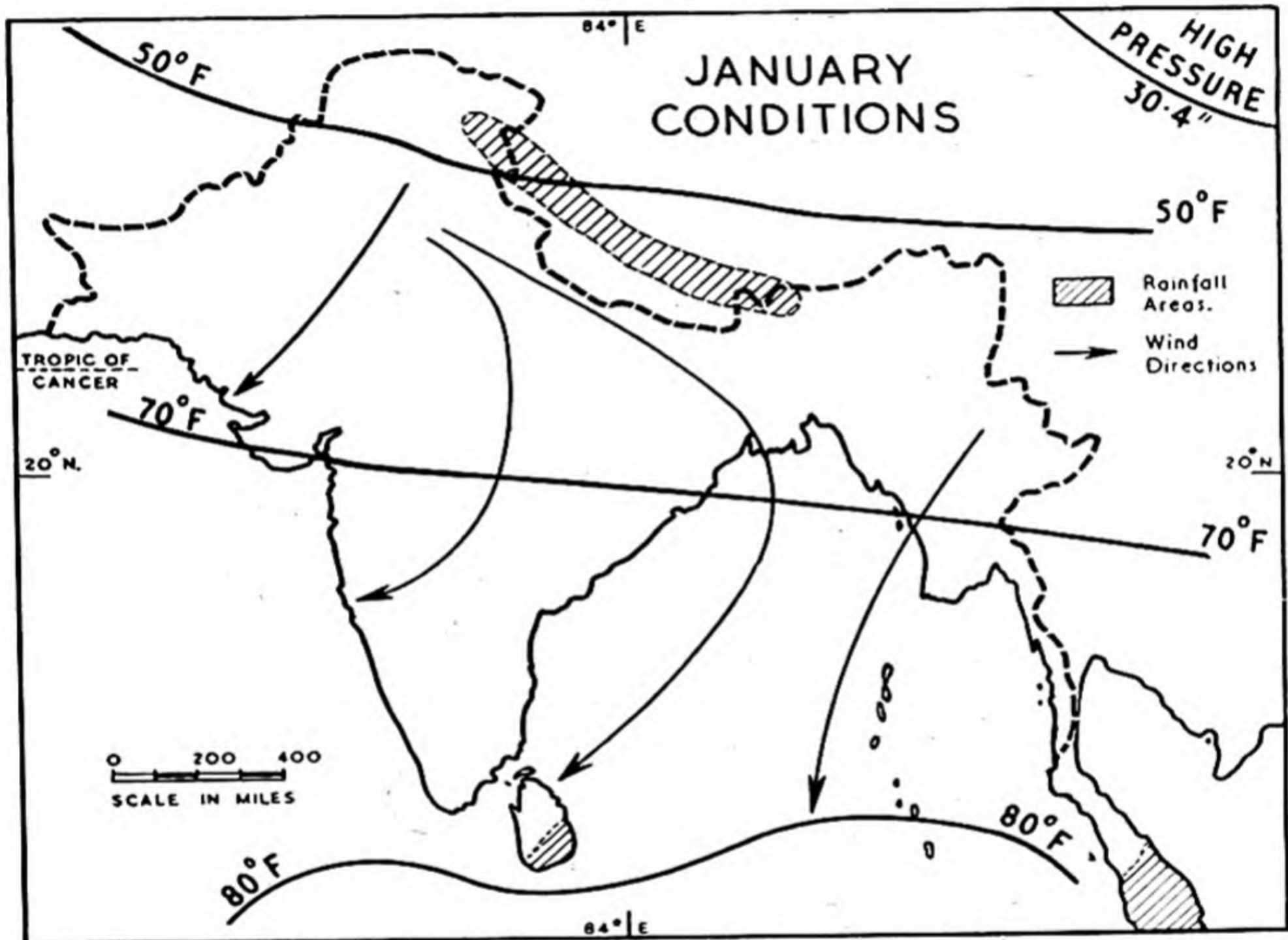


Fig. 22.

in the Lower Ganges Basin with the highest known average in the world at Cherrapunji. In winter only the southern extremity of India receives any appreciable rainfall, which is caused by the north-east monsoon picking up moisture as it crosses the Bay of Bengal. One part of India has little or no rainfall—the Lower Indus Basin or Thar Desert. March and September are particularly unsettled months, especially in coastal belts, as the wind arrows on the maps show. This is caused by the changes of season at the equinoxes, when

there is a struggle between land and sea influences. At mid-summer all parts of India, with the exception of the mountain ranges, have actual average temperatures well above 80° F., but in winter they vary from just over 50° F. in the north-west to 80° F. in the extreme south.

Peoples

Politically the term India is now applicable only to the Dominion of that name, which comprises the greater part of the Ganges Basin and those parts of the peninsula that were



Fig. 23. THE PARTITION OF THE PUNJAB.

included within British India, together with many of the hitherto self-governing States in those areas. It is peopled chiefly by Hindus. The remainder of "British India," consisting of most of the Indus Basin and of Eastern Bengal with the exception of Calcutta, comprises the Dominion of Pakistan, where the majority of the population is Moslem. There remain a few small areas on the coasts under Portuguese and French control—all that is left of their once great trading interests.

In an area where there was such an intermixture of peoples of different races, languages, and religions (see Tables p. 82)



Above: THE KHYBER PASS. (Fox Photos.)



Below: A MANGANESE MINE IN SOUTHERN INDIA. (Exclusive News Agency.)



Above: INDIA. PLOUGHING WITH OXEN. (*Exclusive News Agency.*)

Below: ASSAM. HARVESTING RICE. THE OXEN ARE THRESHING THE RICE BY TRAMPLING ON IT. IN THE BACKGROUND TWO WORKERS ARE WINNOWING WITH FANS. (*Topical Press.*)

it was not to be expected that the clear cut sub-division into two Dominions could be carried out without trouble. The first major difficulty arose in the Eastern Punjab, which was divided between the two Dominions by mutual agreement. Owing to the development of vast irrigation systems the pressure of population in the Ganges Lowland had been greatly relieved because the people migrated to take over the newly irrigated lands. This accounts for the mixture of types of population in the Punjab where 57 per cent. are Moslem to 26 per cent. Hindus and 12 per cent. Sikhs. The last named preserve their individuality by observing different customs, religious rites, and dress from those of their neighbours. The relatively mixed population has led to the Punjab being a difficult area from the political point of view. The majority of the Moslems supported the idea of Pakistan, *i.e.* the areas of India mainly inhabited by Moslems to be an autonomous state, whereas the Congress Party (mainly composed of Hindus) would hear of nothing but a single united India.

Eventually the Moslem idea was adopted. However carefully the line of demarcation between Pakistan's Western Punjab and India's Eastern Punjab was drawn, millions of people were bound to find themselves on the wrong side of the line so mixed were the communities. In the summer of 1947, therefore, one of the greatest mass movements of history occurred. It was, indeed, a two-way movement, for Sikhs and Hindus travelled eastwards into "India" and Moslems westward into Pakistan. From August to December 8,500,000 refugees moved across the frontier. 4,400,000 of these were Hindus and Sikhs and 4,100,000 were Moslems. Only about one-quarter of the total number travelled by train in organised parties. The remainder trekked with their bullock-carts laden with their few family belongings and with their cattle. All were liable to be attacked, and amongst their perils there were outbreaks of the deadly plague, cholera.

A second problem to arise was that of the position of the hitherto semi-independent States ruled by their own Princes and acknowledging the supremacy of the British Raj (King Emperor). Most of them opted to join one or other of the Dominions, but in a few cases, such as Kashmir and Hyderabad, a difficult situation which always existed was now brought to a head and caused trouble.

THE INDIAN SUB-CONTINENT

RELIGIONS OF THE SUB-CONTINENT

RELIGION	ADHERENTS (millions)
Hindu	255.0
Moslem	94.3
Christians	6.3
Sikhs	5.7
Jains	1.4
Parsees	0.1
Buddhists	0.2
Pagans	25.4
Others	0.4

PUNJAB

Moslems	16.2
Hindus	7.6
Sikhs	3.8

RISE IN POPULATION OF THE SUB-CONTINENT

YEAR	POPULATION
1891	279,400,000
1901	283,900,000
1911	303,000,000
1921	305,700,000
1931	338,100,000
1941	389,000,000
1951 India .. 361,800,000 \	437,500,000
Pakistan 75,700,000 }	

POPULATION ACCORDING TO LANGUAGE (millions)

Hindustani and allied languages	121.3
Bengali	53.5
Telugi	26.4
Punjabi	24.7
Marathi	21.4
Tamil	20.4
Kanarese	11.2
Oriya	11.2
Malayalan	9.1
Mundi languages	4.6
Eranian	3.8
Sindhi	3.7
Pahari	2.7
Others	20.8

In Hyderabad, for example, a Hindu people was ruled by a Moslem prince, and in Kashmir a Hindu prince ruled a Moslem people. In the latter case civil war resulted and the two Dominions nearly came to blows. For three years the Security Council of the United Nations have tried to find a solution, but at the moment of writing (May 1952), they have

had no success. There have also been cases when a ruler has refused to allow his territory to be absorbed—the outstanding example being Baluchistan, a large and mountainous territory on the south-western borders of Pakistan. This problem has been largely solved by the decision of the ruler of Kalat, whose territories cover a great part of Eastern Baluchistan, to accede to Pakistan.

The military strength of Pakistan is much less than that of Hindustan (India). A consequence of this has been the

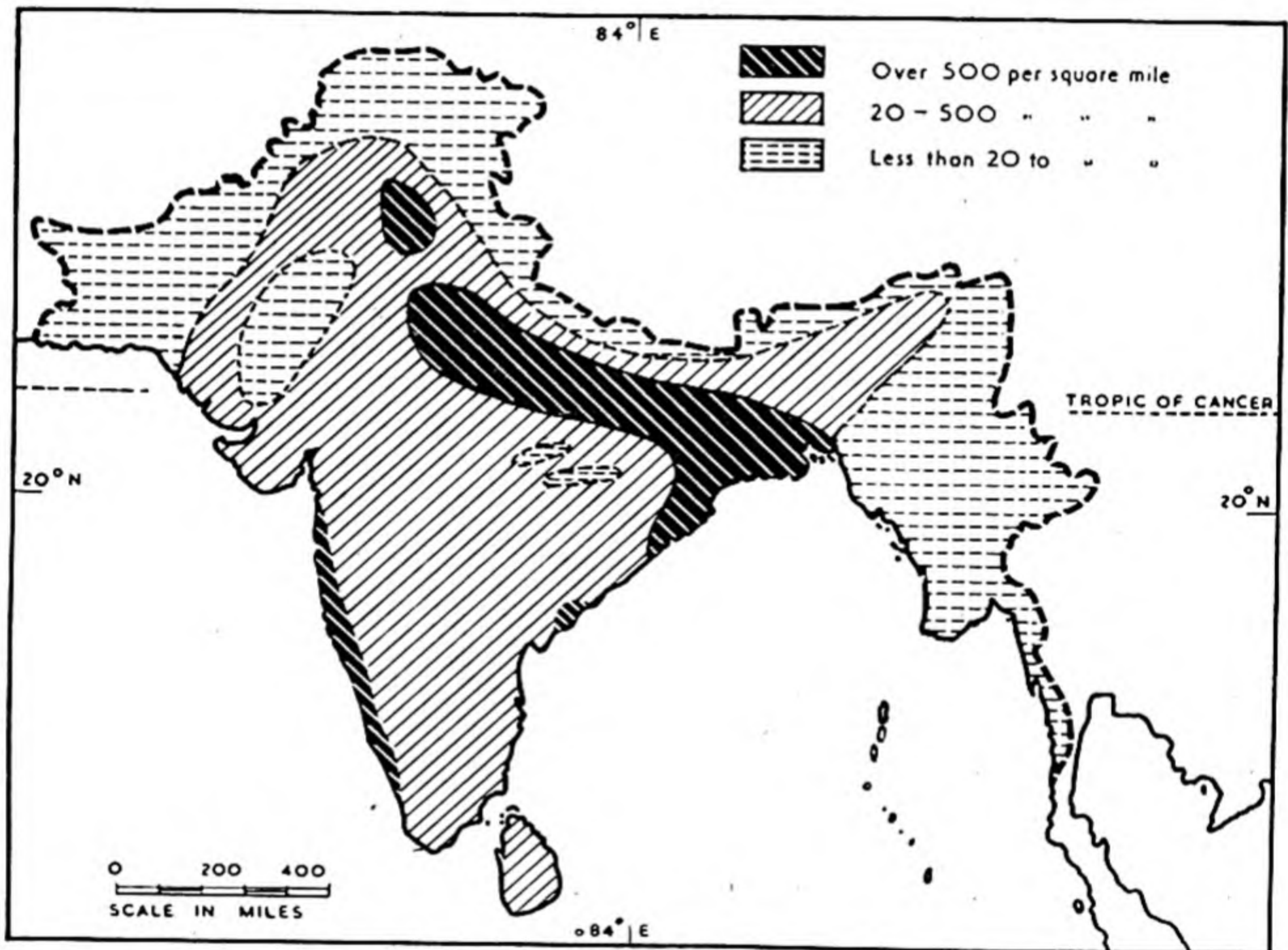


Fig. 24. DENSITY OF POPULATION.

withdrawal of troops from the north-west frontier territory of Waziristan, whose tribesmen have been a menace to the peaceful plainsmen. In the extreme north-west the warlike Pathans, who live on the borders of Afghanistan, are demanding independence and the formation of "Pathanistan."

Of the total population of 420 millions (1949), 275 millions are Hindus and 103 millions are Moslems. There are also 6 million Sikhs, 1½ million Jains, 6 million Christians, 100,000 Parsees, as well as about 20 million Pagans who live mainly

in the mountains of the Northern Deccan and in the extreme north-east.

Most of the peoples of India entered the country through the Khyber Pass. The aboriginals were forced into the mountainous areas by the Dravidians who, in their turn, have been crowded into the extreme south-eastern area. These groups are negroid, but next came the Indo-Aryan branch of the White race—first the tribes who were to become the Hindus, and later the Moslems. The former now live chiefly in the North-West Deccan and the Ganges Valley, and the latter in the Indus Basin, although there is a large Moslem community in the Lower Ganges area. The Sikhs live on

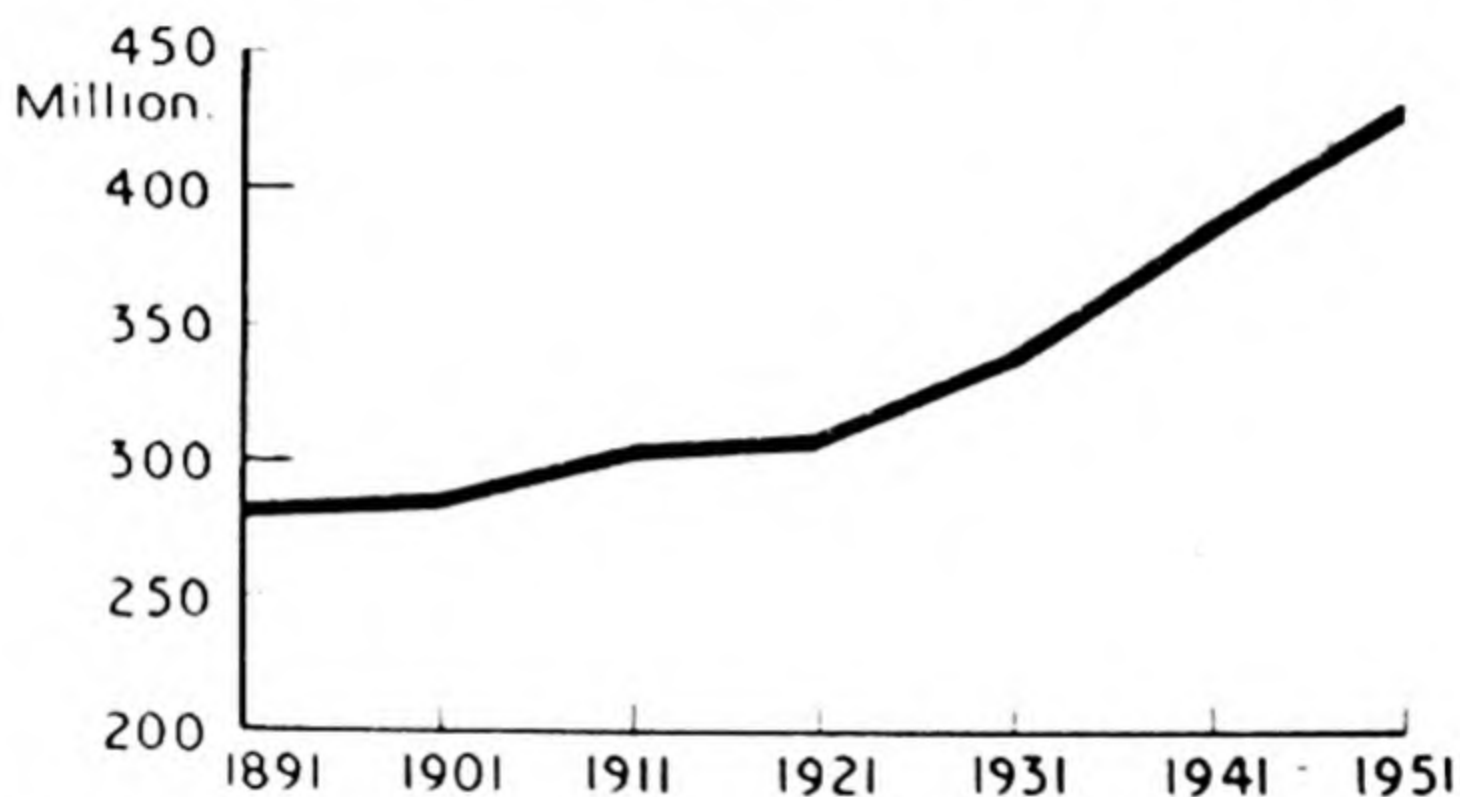


Fig. 25. GRAPH TO SHOW RISE IN THE POPULATION OF THE INDIAN SUB-CONTINENT.

Note the sharp rise after 1921, when the effects of irrigation schemes, famine relief, and medical services were beginning to make themselves felt.

the “saddle” between the Indus and Ganges Valleys, and the Parsees in the Bombay area. The latter are descended from fire-worshipping refugees from Persia who fled rather than adopt the Moslem religion.

The density of population is high in all parts of India with the exception of the Thar and of the mountainous areas. Indeed, in most parts there are more people than the country can supply properly under the present agricultural economy. The population has increased rapidly in recent decades, as the tables and graph show. This is owing to the greatly improved conditions of health services which have reduced the death rate, especially that of young children. Some idea

of the problems still facing the health services is the fact that over one million people die annually of malaria alone, and malaria is a disease which can be practically eliminated in a civilised country by draining mosquito breeding swamps and by the use of anti-malarial medicines, such as quinine or the more modern and easily produced mepacrine and paludrine. Other scourges are cholera and hook-worm. It must be remembered that the improved and improving state of health of this and all other tropical and sub-tropical countries is bound to produce serious problems of another type. Will they be able to produce enough to support their rapidly increasing population, and how will this affect the economies and politics of the "Western" nations?

In India irrigation schemes have been developed and have reduced the risk of famine which used to wipe out great numbers annually. They have also relieved the pressure of population by opening up great new areas for cultivation, *e.g.* in the Punjab and, more recently, in the Lower Indus Basin. Now most of these areas have become fully populated and very few more are available, except for comparatively small ones. There is, of course, much room for improvement in Indian methods of agriculture. Old-fashioned implements are used and there is little or no idea of crop rotation. As a result crop yields are low. It is obvious that, could these be increased, many more people could be supported and at better standards than at present. There are thousands of square miles of forest land which, if cleared, could be made to support large numbers of people, especially in the coastal lowlands. Many more wells could be sunk in the already inhabited areas. The sub-continent has a greater number of cattle than any other country in the world, but most of them are kept by Hindus. The latter, for religious reasons, will not kill any animals, so that a large proportion is either too old to be of use, or is diseased. Much valuable food is wasted and pasture land is used which might be yielding food crops. Little improvement can be expected until the general standard of education has been raised. What has to be done in this direction will be realised from the fact that in 1941 only 47 millions were literate.

THE SUB-CONTINENT'S RELATIVE POSITION AS A CROP PRODUCER

	ACRES (millions)	TOTAL PRODUCTION (millions)	YIELD PER ACRE
A. SUGAR—			
India ..	4.1	5.7 ton	1.4 ton
Cuba ..	2.1	5.1 ton	2.4 ton
B. COTTON—			
India ..	20.4	2040 lb.	100 lb.
U.S.A. ..	20.1	6100 lb.	335 lb.
C. RICE—			
India ..	80.0	30.6 ton	0.38 ton
U.S.A. ..	1.5	1.8 ton	1.2 ton
D. WHEAT—			
India ..	33.7	9.7 ton	0.29 ton
U.S.A. ..	59.3	26.9 ton	0.45 ton

Another way to relieve the economic pressure upon the population is to develop manufacturing industries. A start has already been made in the cotton mills of Bombay, the jute mills and steel works of Howrah, and the shipyards of Vizagapatam, but very much more will have to be done to make any real impression. There are only about 13,500 mills and factories in the whole of the Indian sub-continent with 3 million workers, *i.e.* only 1.25 per cent. of the population.

The sub-division of "India" into the independent Dominions of India and Pakistan has led to economic problems. India has five times the population of Pakistan, which consists, moreover, of two widely separated territories. India has most of the mineral wealth and nearly all the present factories, but has to import large quantities of food and raw materials, such as cotton and jute. Pakistan has no food problem and with considerable export surpluses of jute and cotton is in the stronger economic position at present. Pakistan's main imports are cotton goods, machinery, and vehicles. India's chief exports are manufactured jute, cotton goods, and tea, and her imports machinery, food grains (rice and wheat), raw cotton, and petroleum. It will be seen therefore that the economies of India and Pakistan are to a considerable extent complementary and it is to be hoped that the future will see a dying down of the political and religious antagonisms which at present hamper economic co-operation.

CHAPTER VIII

THE REPUBLIC OF INDIA

The Republic of India remains in the British Commonwealth of Nations although not recognising the sovereignty of the Queen. It consists of the whole of the peninsula except for the Portuguese territory of Goa on the west coast and trading ports of Diu on the Kathiawar Peninsula and Daman, north of Bombay. There are also the relics of the former French Indian Empire, Pondicherry and Karikal, both south of Madras, and Yanam, on the Godavari Delta. India also includes the greater part of the Ganges Lowlands, the eastern half of the Punjab (see Figs. 23 and 28 for boundaries with Pakistan) together with the provinces of Assam, Manipur, and Tripura in the extreme north-east.

The country may be divided into the following regions: (1) the Peninsula; (2) the Ganges Lowland; (3) the Mountain rim of the north and east.

(1) THE PENINSULA

The Western Coastal Area

Flanking the entire western shore there is a very narrow coastal ledge between the Arabian Sea and the Western Ghats. Indeed, this coastal ledge is not really continuous because in places low spurs from the Ghats reach the sea in high cliffs. The whole of the region is exposed to the full force of the summer south-west monsoon so that there is a heavy rainfall. During that season conditions are very similar to those of the Equatorial lowlands with the result that the natural vegetation is a dense and luxuriant jungle, despite the winter drought. Much of this forest has been cleared and the region now supports almost as many people per square mile as does the Lower Ganges Basin. The great majority get their living by cultivating such crops as rice, cane-sugar, mangoes, and chillies—the two latter being ingredients of chutney, made in Bombay. Some rubber is produced in Travancore, the State in the extreme south.

In the extreme north-west the coastal lowland widens considerably to form the island of Kutch and the Kathiawar Peninsula. The former is separated from the mainland by the Rann of Kutch, a salt swamp once an area of the sea which has been partially raised. During the summer rains it forms into two shallow lakes but in the dry season it becomes a desert from whose salt pans valuable supplies are obtained. The island is undulating with two ridges of hills reaching about 900 feet. Its climate is a transition between that of the heavy rainfall area to the south and the dry Lower

Indus Basin. The chief crops, as also in the Kathiawar Peninsula, are cotton, millet, and wheat.

Bombay (population 1,500,000) is the second city of India. It came into English hands as part of the dowry of Catherine of Braganza when she married Charles II in 1662. It was handed over to the British East India Company and displaced Surat as the principal depot on the west coast. It did not begin to rival Calcutta until the opening of the Suez Canal in 1878, when, owing to

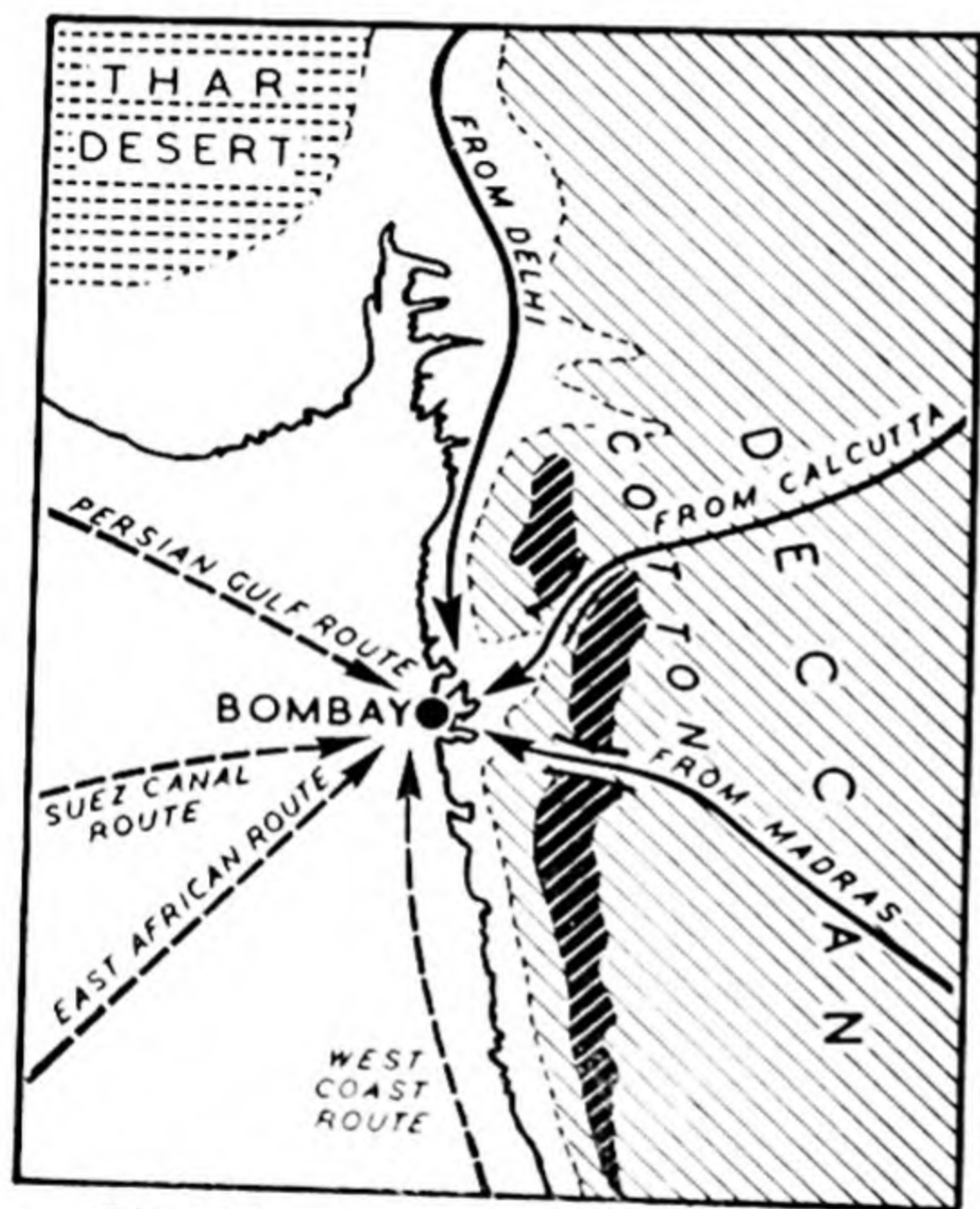


Fig. 26. SITUATION OF BOMBAY.

its position nearly opposite the outlet of the Red Sea, it became the chief passenger and mail port of India. Prior to this Calcutta had handled most of this traffic, as the sailing ships which rounded the Cape of Good Hope took advantage of the "Brave West Winds" by sailing far to the eastwards before making their northing and so approached the east coast of India. The immediate hinterland of Bombay is very restricted but the port has good access to all parts of the country and to the other great cities to which it is linked by a network of modern railways. Thus, one line passes

northwards along the coastal plain through Surat and then runs between the Aravalli Hills and Thar Desert to Delhi: a second one goes to the north-east and climbs the steep western edge of the plateau by the Thal Ghat (Ghat means Gate or Pass), and then makes use of the Narbada trough between the Vindhya Range and Mahadeo Hills. It reaches the Ganges at Allahabad and follows the valley to Calcutta. The third climbs through the Bhore Ghat to Poona, Bombay's hill-station, and then crosses the Deccan to Madras.

Bombay is situated on the outer and smaller of two islands. Railway and road bridges link it with Salsette Island and thence with the mainland. The harbour to the east of the islands is well sheltered from the south-west monsoon.

One of the outstanding elements of Bombay's population is Parsee. These Parsees are descendants of refugees who fled from Persia because they would not desert their fire-worshipping religion for Muhammadanism. Many of them are wealthy merchants, some of whom have invested their money in cotton mills of which there are over 400. Cheap quality cotton goods are made from coarse short-stapled cotton grown on the Deccan and in Uganda. Power from the swift streams of the Western Ghats is used to drive the machinery. There are also engineering works of some importance.

The other towns are by no means so important as Bombay, serving only as local ports. Note that there is no railway southwards from Bombay, the fairly extensive trade being carried out by coastal shipping. Goa is a relic of the Portuguese Indian Empire. Its people are mainly half-castes and many of them work as stewards on passenger liners. Calicut deserves mention because it was the first port reached by Vasco da Gama and because it has given its name to the fine cloth (calico) originally made there.

The Deccan

As already stated, the dip-slope of the Deccan has been eroded by a series of rivers. The average height increases steadily southwards until in the States of Mysore and Bangalore it is over 2000 ft. Owing to the lower rainfall (20 in.-40 in.) and the better drainage, the natural vegetation is much more open than it is on the coastal plain and there are quite

extensive areas of "Sudan" grassland where scattered drought-resisting "banian" trees grow.

Most of the plateau consists of very ancient rock, but in the north-west there is an extensive area of volcanic rock. It is in this region that the cotton is grown for the Bombay mills. Cultivation is very primitive and no use is made of irrigation. The soil is a heavy clay which retains moisture so that the seed is sown thinly, each one forming a ball of clay around its roots, thus securing an adequate share of moisture. The disadvantage is that shallow rooted weeds quickly spring up and tend to choke the plants, reducing the yield. The cotton is short-stapled and coarse, but elaborate cultivation would increase the cost of production and the native industry requires cheap cotton. In this north-western region Poona is the best known town. It is the hill-station for Bombay, and Europeans spend as much time as possible there during the hot wet summers.

Over most of the remainder of the Deccan the rivers have been ponded back to form simple irrigation reservoirs known as "tanks." There are so many of these that a map showing them gives the impression that each river consists of a chain of lakes. The chief disadvantage is that they can only be used when the rivers are full in the summer time so that only one crop can be produced. The outstanding Deccan crop is millet. In India it is the main food crop in those areas too dry for rice (rainfall less than 40 in.).

There are two main mineral bearing areas. The chief is in the north-east where the iron and steel works of Tata use local coal. Here is the largest steel works in the Empire, producing over one million tons of steel ingots and three-quarters of a million tons of steel. The new town, Jamshedpur, has arisen to house the workers and now has a population of over 150,000. Bangalore has a small aircraft industry.

In the extreme south there is a smaller coal-field, and gold-fields and irrigation works. The Mahbubnazar Canal to the north of the capital irrigates a large area for rice. In this area the heavy rainfall and great heat have combined to cause dense forest of the high country of Mysore, one of the few remaining forested areas of India. Here wild

elephants are trapped and trained. The State has developed hydro-electric energy from the Cauvery River and has a well-planned canal irrigation system.

Hyderabad, with a population of three-quarters of a million, is the capital of the State of the same name, a State in which there has been a great deal of progress, *e.g.* in hydro-electricity. The toddy-palm, the juice of which provides an alcoholic drink, is a State monopoly and provides an important source of revenue. The leaf stalks yield kittul fibre for brooms. Hyderabad has been rebuilt on modern lines and has a cotton industry. Farther north, Nagpur and Jubbulpore (Central Provinces) are also centres of that industry.

The Eastern Coastal Plains

These are much more extensive than those of the west coast, especially where the larger rivers have cut back the edge of the Dec-

can on the inland side and pushed out great deltas on the seaward. In the extreme south the Cauvery, and its tributaries have almost severed the Cardamon Hills from the main plateau, creating the Palghat. Notice how the Madras Presidency has spread through the gap to the west coast, which is more accessible to Madras than to Bombay.

The whole of this area is densely populated and highly cultivated, the principal crops being rice and cane-sugar.

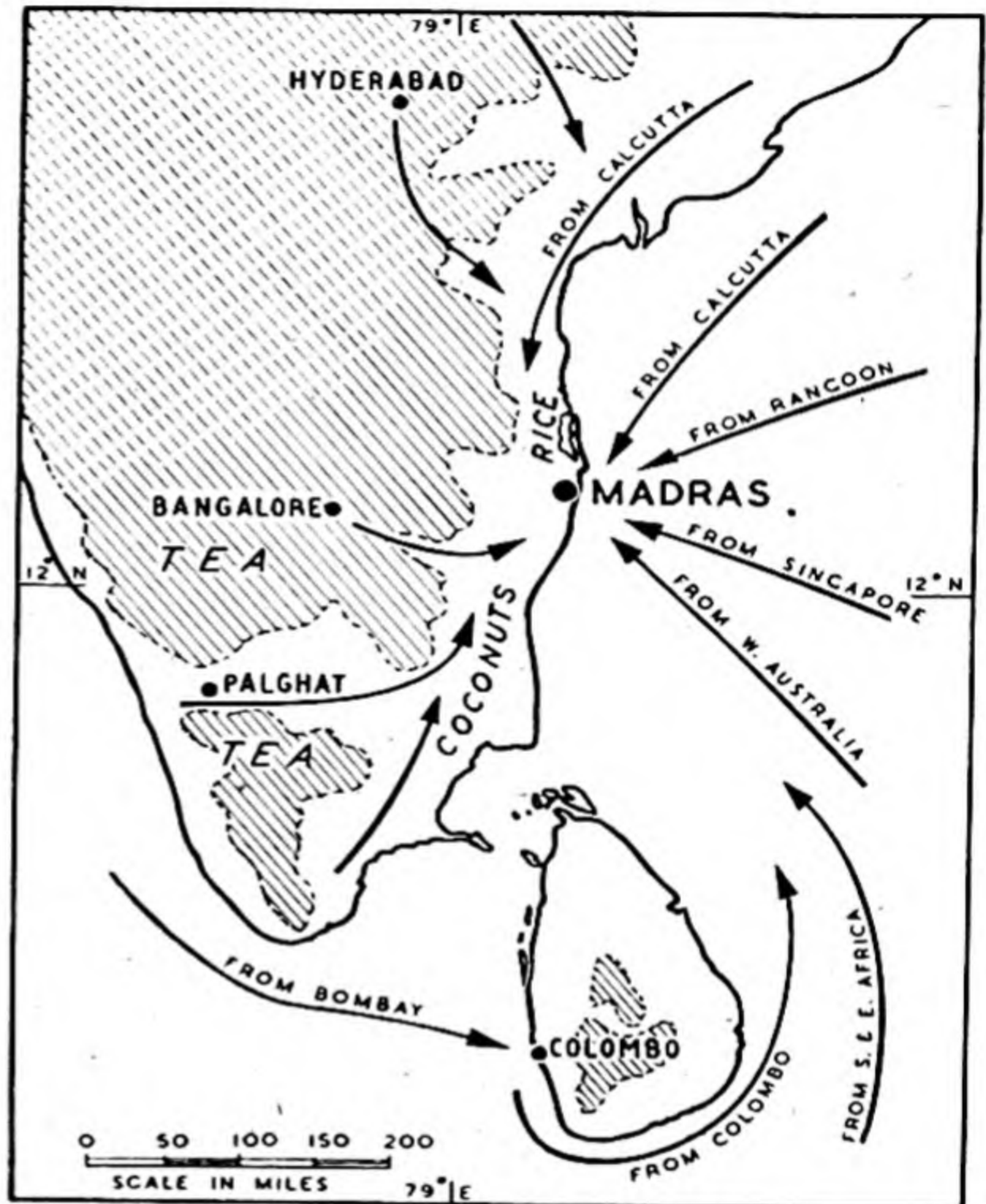


Fig. 27. MADRAS—CHIEF COMMERCIAL AND POLITICAL CENTRE OF SOUTH-EAST AND SOUTH-WEST INDIA.

Note the importance of Palghat.

The deltas are particularly favourable to the former. India is the world's largest producer of sugar-cane, but it is not an export crop. (See table.) The most ambitious irrigation scheme is in the valley of the Cauvery River in Southern Madras where the Mettur Dam, which is over a mile long, ponds back a reservoir of 60 square miles.

Most of India's 49 million depressed classes live in the southern part of this region. They are Dravidians, *i.e.* descendants of the original Negroid people who were pushed farther and farther south by the "White" Hindus. It was really a "colour-bar" which led the Hindus to exclude them from their temples and to keep them at a distance.

Madras is the chief city. This port, with an artificial harbour, has declined in importance since the opening of the Suez Canal. It used to draw much of the trade of the Deccan, but now most of this gravitates to Bombay. Although there is a good railway system along the plain much of the trade is carried out by coastwise shipping, as on the western side, and this plies its trade in a series of ports, *e.g.* Vizagapatam (where a shipbuilding industry has recently become established, the first ocean-going steamer of 8000 tons having been launched in March 1948), Cocanada, Masulipatam, and the French Pondicherry. Inland there is another series of towns which may be compared with Cairo, for they are at the heads of deltas and so are bridge towns at the first possible single bridge point as well as being control points of the delta irrigation systems. Good examples are Rajahmundry on the Godavari and Bezwada on the Kistna.

(2) THE GANGES LOWLAND

This synclinal lowland acts as a natural drainage trench into which the waters of the surrounding uplands pour. For this reason most of it is covered with alluvial deposits of great fertility and, provided that there is adequate rainfall or there are facilities for irrigation, high crop yields are obtained.

The Ganges Valley

This includes the smaller part of the Ganges Delta, the greater part of which is included in the territory of Eastern Pakistan, and the general characteristics are dealt with in the next chapter. The delta land once corresponded roughly with

the province of Bengal which had an area of 82,000 square miles and a population of over 60 millions, and was one of the "black spots" of inter-racial disturbance, 54 per cent. of its peoples being Moslems and 42 per cent. Hindus.

Calcutta, with a population of over two millions, stands at the limit of navigation of the Hooghly, the most westerly mouth of the Ganges and the only one open to ocean-going shipping. Navigation is very difficult owing to the strong outflow and the frequently shifting mud banks. The city

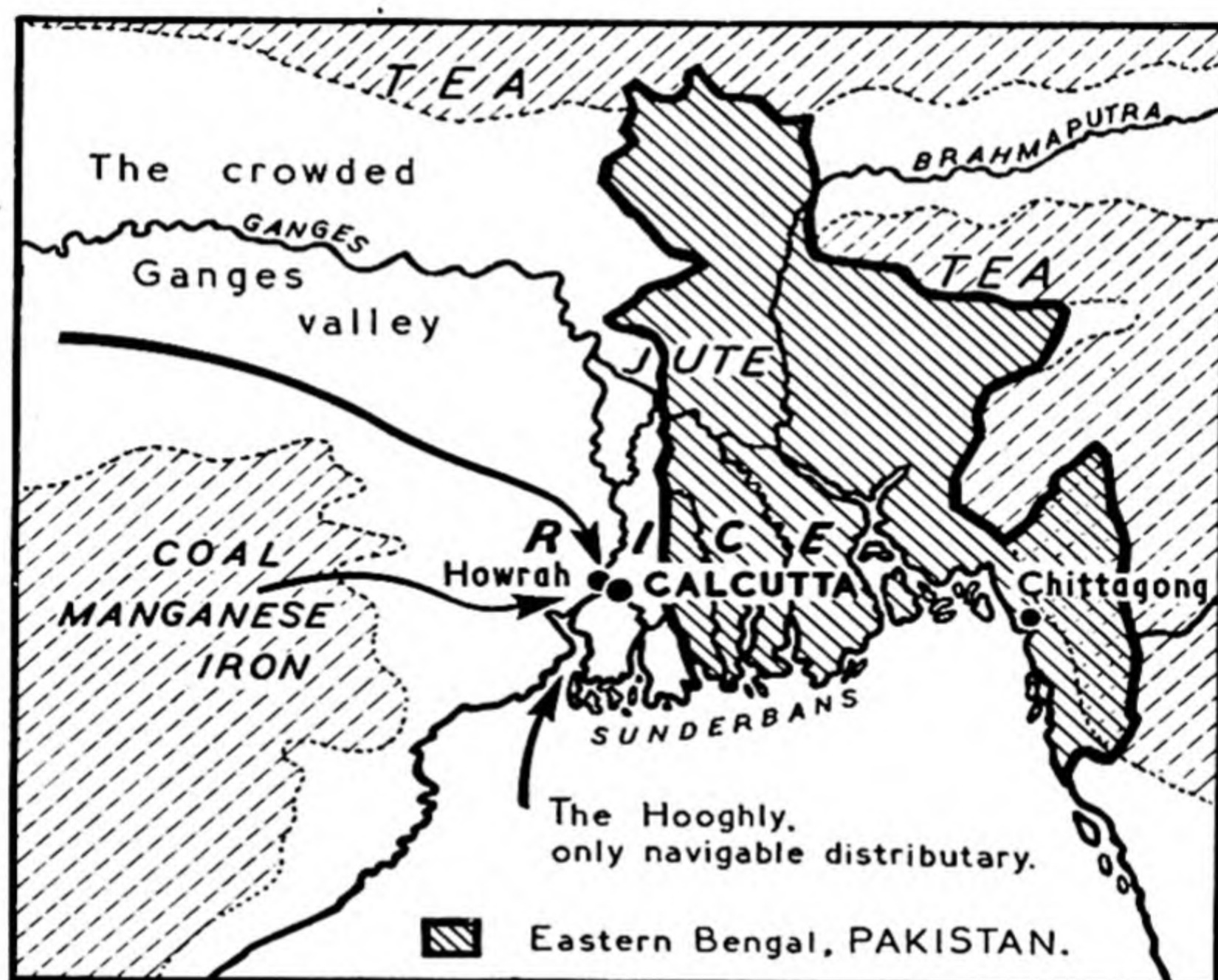


Fig. 28. CALCUTTA—INDIA'S CHIEF CARGO-PORT.

owes its great importance to its densely populated hinterland, for which it is the only outlet. It is no longer India's greatest passenger port, having lost that distinction to Bombay. Howrah, on the opposite side of the Hooghly, has developed as an industrial centre, with jute mills and steel works. Because of the division of Bengal between India and Pakistan, Calcutta has lost part of its hinterland as Pakistan has developed Chittagong to serve as the chief outlet for its Bengal territory, particularly for the export of jute. As Eastern Bengal produces over 60 per cent. of the total world output it is obvious that the loss of trade in this commodity alone

has been a serious one especially when it is remembered that 270,000 workers were employed in the jute mills of Howrah and Calcutta, mainly occupied in converting the jute into sack-cloth to be exported to such sack-making centres as Dundee.

The Middle Ganges Valley

This valley may be taken to mean the east-west area extending inland as far as Agra. Below Patna the main stream receives only inconsiderable tributaries, but above that city there is a whole series of important ones all flowing for considerable distances from north-west to south-east diagonally across the plain. Thus the Rapti joins at Chapra; the Gumti just below Benares, and the Jumna flows in at Allahabad.

This is the part in which there are more large cities than in any other corresponding area of India. They include Cawnpore (500,000), Agra (300,000), Lucknow (400,000), Benares (260,000), and Allahabad (260,000). They are the "market towns" of the densely peopled agricultural lowlands. Here the land is farmed in small holdings by the tenant farmers (ryots) who, in most cases, are struggling to make a poor living and who are in the rapacious hands of money-lenders.

In the eastern half (part of Bihar) the chief crop is rice, that grown around Patna being especially famous for its quality. Indeed, the name "Patna rice" is now applied to the very best, wherever it is grown. Altogether in this province there are over 9 million acres under rice. Other important crops are maize and oil seeds (summer); barley and wheat (winter). Perennial irrigation has in this region provided an insurance against the failure of the monsoon rains and has also made it possible to cultivate throughout the year by providing water during the dry winter. In the southern part of this region there are the largest mica resources in the world, the chief mines being at Monghyr and Gaya. The western half, or "United Provinces" of Agra and Oudh, now called "Uttar Pradesh," is the part where most of the tributaries flow and in consequence where there is much greater scope for irrigation. The most important section from this point of view is the Doab, as the plain between the Ganges and the Jumna is called.

Altogether over 11 million acres are irrigated, partly from wells and partly from canals—the chief of the latter being the Sardis Canal, the longest in the world and irrigating 1.25 million acres. In addition there are 26 million acres of non-irrigated land under cultivation. The chief food crop is wheat which is grown in the winter, with millet, oil seeds, tobacco, and rice as summer products.

The combined populations of the United Provinces and Bihar exceed 90 millions in an area of over 180,000 square miles, or an average of nearly 500 to the square mile. As the area includes unproductive regions, it follows that the density in the fertile parts is greater than 500 to the square mile. The great cities are on the Ganges or its tributaries. Patna is the capital of Bihar, Lucknow the capital of Oudh, and Allahabad the capital of Agra.

The name of the last-named city serves to remind us that although the great majority (over 80 per cent.) of the people are Hindus, there are “islands” of Moslems, so that it is not surprising that there are outbreaks of communal rioting in this area. Benares, in a central position in the Ganges Basin, is not only a great junction of routes but also the most sacred city of the Hindu religion. It is the spot to which all Hindus endeavour to make a pilgrimage, so that they may bathe in the waters of Mother Ganges from the steps of the temple. People suffering from various diseases

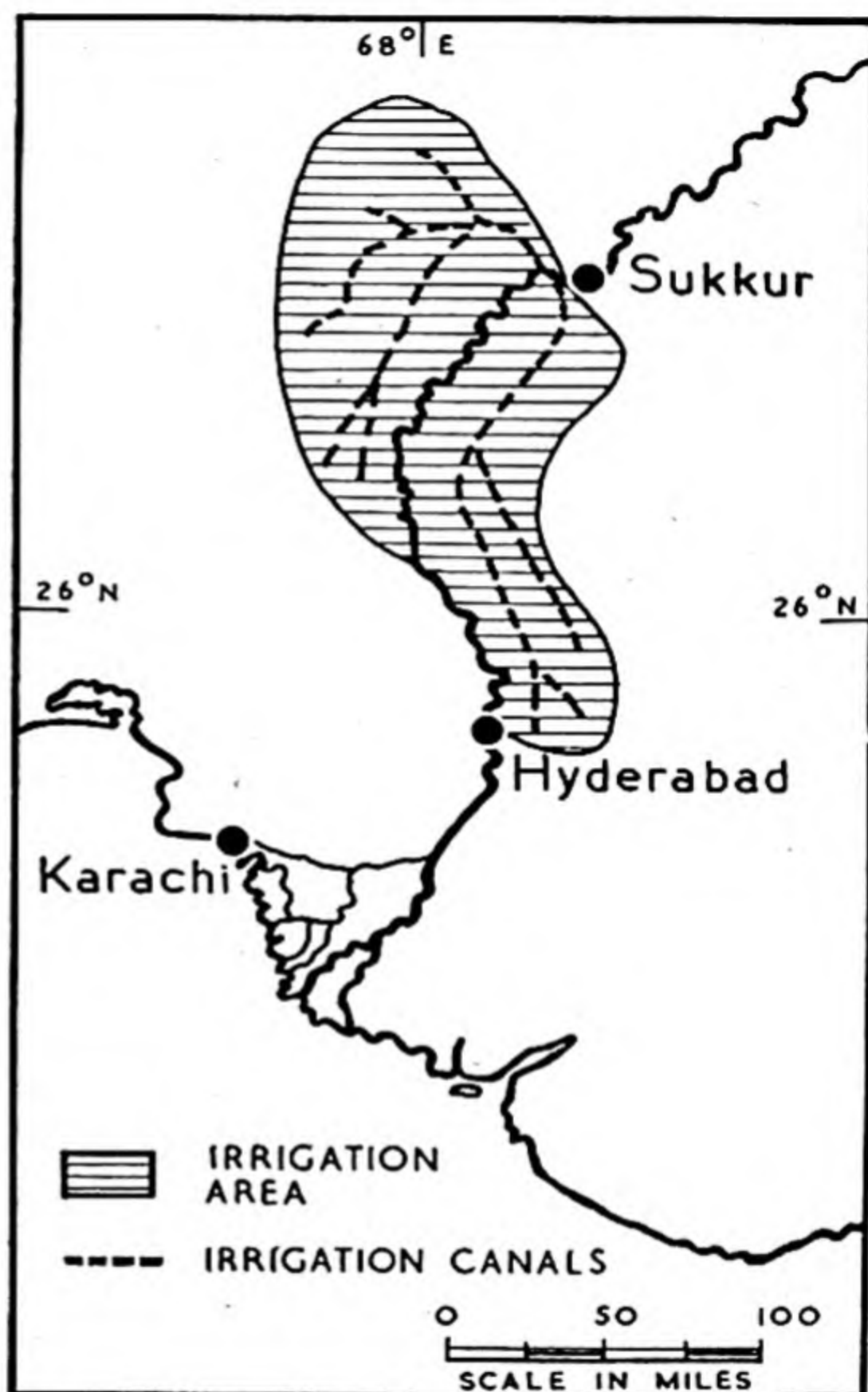


Fig. 29. SIND IRRIGATION AREA.

are brought by relatives in the hope that miraculous cures may be effected, and the ashes of the dead are scattered on the river so that they may be borne to the other world.

The Punjab (India) is that part of the north-west of India which comprises the "saddle" between the Himalayas to the north and the north-western edge of the Deccan to the south. It is really the watershed between the Ganges and Indus river system and includes the greater part of the basin of the Jumna, chief tributary of the Ganges, and which may be taken as its eastern boundary. In the extreme north it contains part of the basins of the Sutlej, Beas, and Ravi, Indus tributaries which flow through the Pakistan Punjab. Irrigation is essential throughout this area as the annual rainfall is everywhere less than 40 ins. The actual production and system of irrigation is very similar to that of the Pakistan Punjab so that detailed reference is made to them in the next chapter. The chief town is Amritsar (400,000). Jullundur has a major share of the sports' goods industry which its Hindu owners transferred from Sialkot in the Pakistan.

Delhi, the capital of India, owes its importance to its position between the Indus and Ganges Basins on the "saddle" which makes a gateway from the north-west. Old Delhi became the capital of the Moslem invaders, for it stood on the threshold of the fertile Ganges Lowland to the east whilst behind it stretched the more familiar steppe-land of the Punjab. This habit of establishing a capital on the side of the conquered country from which the invaders approached is understandable, for they are in a position either to retreat or to secure reinforcements. Other examples were Pei-ping (Peking), founded by the Manchus when they entered China from the north; Dublin, the English-founded capital of Ireland; and Calcutta, the original English capital of India, which was only replaced by New Delhi when it was felt that if India was to grow towards self-government it must be given a capital more in keeping with its own traditions and in a more convenient position for administrative purposes. It is a natural centre of routes, being linked with Calcutta and the Lower Ganges Basin, the Punjab, and Bombay. The only part of the country with which it is not in easy communication is the Madras region, but there is no other locality where three of

the four densely-populated areas can be easily reached. It has an increasingly important cotton industry. Now that the country has been sub-divided it is by no means in a central position but it is very doubtful whether it will lose its position

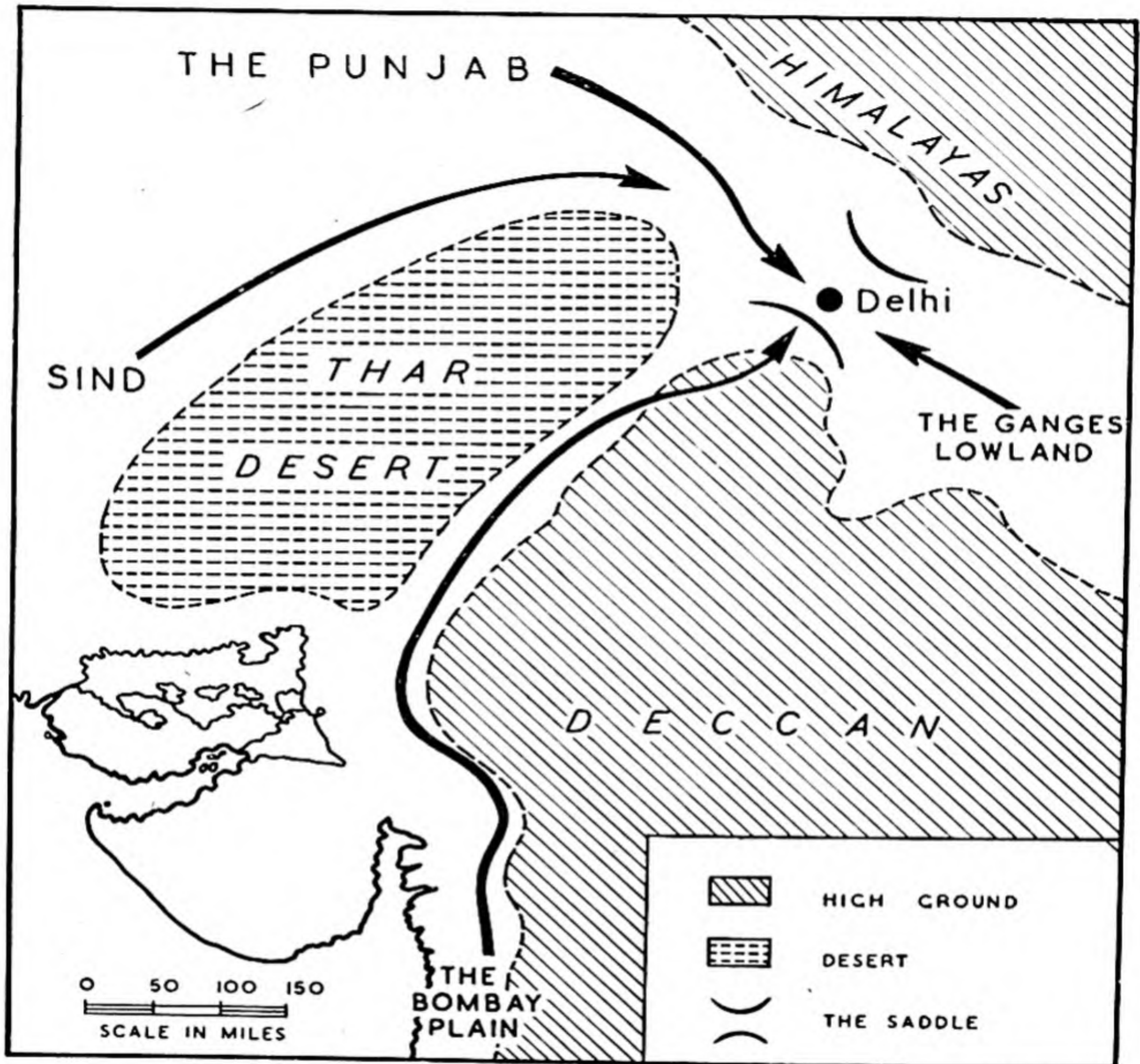


Fig. 30. DELHI.

The natural meeting-place of peoples from three of the four densely-populated areas of the sub-continent.

as capital because it has by now become well established as the capital in the minds of the Indians, and it has all the administrative buildings and residential advantages.

(3) THE MOUNTAIN RIM

For the sake of convenience we have included those areas of the mountain rim adjacent to India within this chapter even

though they may not be territorially part of that country. Thus, Kashmir, whose political future is in dispute is dealt with here.

A great bulge north-eastwards in the Indian frontier encloses Kashmir with a population of over 4 millions. It contains some of the highest and most inaccessible mountain country of Asia in the Karakorams (Mt. Godwin Austen—28,250 ft.). At the extreme N.W. corner there is a difficult track known as the Gilgit Road, which links Kashmir with Kashgar, the Central Asiatic caravan centre. It can be kept open only by post-runners in the long seven months' winter when it is often covered with 40 ft. of snow.

The upper Indus Valley is a stony desert where poor crops of barley are grown by means of a primitive irrigation system, water being carried for long distances by wooden ducts on stone pillars. The entire valley supports a population of only 14,000. By contrast the Happy Valley or Kashmir Plain of the Upper Jhelum is a highly cultivated region. The outstanding product is silk from which the famous Kashmir shawls are made. Srinagar, the summer capital, is in this valley. In the severe winter the capital is placed at Jammu in the more temperate and sheltered piedmont region of the Upper Chenab. Leh is the only town in the higher eastern part.

Further south-eastwards the southern slopes of the Himalayas are deeply cut by numerous torrential streams, headwaters of the Indus and Ganges tributaries. Next comes Nepal, the independent State inhabited by the sturdy Mongol people, the Gurkhas, who have proved such valuable mercenaries of the Indian Army. The country extends into the Ganges Lowland but most of this part is a dense jungle, often swampy, known as the Terai which, incidentally, extends for a considerable distance along the foothills of the Himalayas. Most of the 5½ million people live in the mountain valleys drained by tributaries of the Ganges. The most important town is Katmandu which is in the most populous of these valleys. Wheat, tobacco, opium, and jute are grown and cattle reared. Hides, skins, and clarified butter form the principal exports. The southern forests yield valuable timbers, gums, and resins.

Next comes a wedge of Indian territory, the southern portion being part of Bengal. On the mountain slopes there are

extensive tea gardens facing the gap between the Deccan and Khasi Hills and getting the full benefit of the summer monsoon rains. Darjeeling is the summer hill-station for Calcutta. It is reached by a tiny mountain railway which climbs the steep slopes by numerous zig-zags.

The northern section of this territory consists of the State of Sikkim, which stands between Nepal and Bhutan. There are only about 120,000 inhabitants in an area of just under 3000 square miles. Most of the people are Nepalese who have driven the original Lepchas into the jungles and occupied the better lands for themselves. The country is a succession of narrow steep-sided valleys which have been carefully terraced and irrigated to produce rice and oranges, maize, and millet. The mountain slopes are in the lower parts densely forested but higher up the vegetation is more open with larch and rhododendrons. In one part at 9000 ft. extensive apple orchards have been planted by the Maharajah and the fruit is exported. As the height increases so the snow line is reached and in the extreme north towers Mount Kinchinjunga (28,150 ft.). In the whole country there is only one road and this bears the trade between Tibet and Bengal. It follows the valley of the Tista River which after leaving the capital, Gangtok, becomes such a narrow ravine that only a mule track is possible. Finally, over the highest northern part where it rises to over 17,000 ft., yaks are used. Wool is the chief commodity reaching the outside world from Tibet by this route.

Bhutan is a country which is independent but is granted a subsidy and advised on external relations by the British Government. It is organised on similar lines to Tibet, the priests having a great influence. Products are similar to those of Sikkim.

Assam forms a triangular wedge driving into the north-eastern corner of India with a broad base abutting on Bengal. It consists of five main regions, viz. (1) the eastern extremity of the Himalayas in the north; (2) the Brahmaputra Valley; (3) the Khasi Hills; (4) the Surma Valley, and (5) the eastern ranges known in succession as the Patkel, Naga, and Lushei Hills, and continuing into Burma as the Arakan Yoma.

The Brahmaputra Valley is for the most part a dense jungle, the only means of penetration being by the river and by a single

railway. Mountain tribesmen come down to the edge of the plain to graze their cattle in winter, driving them back into the mountains in summer. This is an example of "trans-humance," *i.e.* the seasonal movement of peoples backwards and forwards along a well-marked route, and is distinct from nomadism. These shy and timid people grow barley and buck-wheat and have weaving and paper-making industries. They are known as the Monbas. In the eastern rain-forests there are the more warlike Akhas who exact tribute from the Monbas. They move their villages about when the cultivated plots become exhausted, as is the custom, *e.g.*, in the Congo Basin. The Nagas, too, are a primitive and warlike people who fight with blow pipes and poisoned arrows, as the Japanese found to their cost in 1944.

Economically by far the most important part is the Khasi Hills, whose southern slopes bear the largest tea gardens in India. There are over 400,000 acres which yield nearly 300 million lb. of tea or nearly 60 per cent. of the total Indian crop.

This is the region of the world's heaviest annual rainfall which falls in the summer monsoon. During that time life is intolerable but after the rains have ceased the workers begin to move in, mainly from Bengal, to commence picking. Altogether there are three-quarters of a million of them, and elaborate arrangements are made for their housing and health by the large planting companies. The only other important product is oil which is obtained from the eastern area.

CHAPTER IX

PAKISTAN

The Dominion of Pakistan consists of those parts of the Indian sub-continent, the majority of whose inhabitants are Moslems. There are two such areas, the main western region formed by the greater part of the Indus basin, and the smaller but densely populated and economically important eastern region of the Lower Ganges (Eastern Bengal). The large semi-desert and mountainous area of Baluchistan to the west of lower Indus basin is also included within the boundaries of Pakistan.

The Lower Ganges Valley (Eastern Bengal)

This, the largest province of Pakistan, has an area of 54,000 square miles and a population of 43 millions. The enormous Ganges delta consists of hundreds of channels which are always changing course owing to the absolute flatness. Often this leads to great hardship, for the rivers form the boundaries of property and owners are ruined should their land be affected adversely. Law suits as to the ownership of land are common. Along the seaward margin are the Sunderbans, a belt of mangrove swamps, inhabited by extremely backward fishing tribes known as water-gypsies. The mangrove trees, which support themselves in the loose mud by sending branches down to take root, yield tannic acid from their bark. Islands of floating vegetation drift about and impede navigation. In this connection the worst menace is the water hyacinth, which is not a native of India. It was introduced into the Botanical Gardens at Calcutta from Brazil, and somehow spread to the delta where it blocks the channels and has even got into the fields. One of the worst results has been the spread of malaria and cholera owing to the ponding back of waterways. The only compensation it affords is that it can be used for manure and for fodder. The delta forms one vast farmland, rice being the most common crop, but jute the most distinctive. Rice is cultivated on nearly 20

million acres which is almost three-quarters of the total cultivated area. There are nearly two million acres under jute yielding over 60 per cent. of the world's total production.

Northwards of the delta there is a belt of lowland between the north-eastern corner of the Deccan and the Khasi Hills which, for the Indo-Gangetic Plain, is remarkably free from rivers. The Ganges edges round the western end and the Brahmaputra the eastern. The summer monsoon blows through the gap and spreads the heavy rainfall northwards to the Himalayas. This area is less densely populated and has poorer communications than any other part of the Ganges Lowland. The opium poppy used to be an important product but prohibition of the export of opium to China for smoking has greatly curtailed its cultivation, which is now carried on solely to supply medical needs.

Other important crops are pulses, oil seeds, chillies, grams, and over three million tons of sugar-cane. In the northern areas over 40 million pounds of tea are grown as well as tobacco, hemp, wheat, and barley. Forest products are important, yielding about 15 million cubic feet of timber as well as millions of bamboos.

All aspects of living are dependent on the rivers which provide the chief means of transport. During the rainy season people travel over the flooded fields from village to village. Several types of boat are used, the most common being the "Ghasi" which holds five passengers. The largest are the panchis which are used for carrying jute and rice, and the smallest are the dinghis which have given us the word for rowing boats carried by larger vessels. A great deal of fishing is carried on by means of nets and of bamboo traps. It is estimated that over one million tons of river fish are caught annually.

The only considerable towns in Eastern Bengal are Dacca and Chittagong. The former is the provincial capital and is noted for its muslins. The latter, well to the east of the combined delta of the Ganges and Brahmaputra has increased considerably in importance since the partition, as it has been developed as a port at the expense of Calcutta, particularly for the export of jute. Amongst other things this entailed the replanning of much of the railway system because, naturally it had hitherto centred on Calcutta.

The Punjab (Pakistan) or "Land of Five Rivers"

As the annual rainfall is here less than 20 in., nearly all of which falls in summer, apart from occasional "Mediterranean" storms in winter, irrigation is essential. Fortunately, the river system lends itself to the canal method of irrigation, for the five rivers converge towards the south-west, draining a huge fan-shaped area—the open end of the "fan" being to the north-east. Briefly, the layout of the canal system is another "fan" of major or trunk canals opening out from N.E. to S.W. and superimposed over the natural waterways. These main canals are linked by minor ones which in turn feed water into the irrigation ditches. The rivers are dammed as they leave the mountain rim, the sluices being open during the summer rains but closed to pond-back the water during the dry winters. There are now $17\frac{1}{2}$ million acres of irrigated land, which accounts for the fact that what was less than a century ago a sparsely-populated steppe-land now supports a population of 29 millions, a density of nearly 300 to the square mile.

By far the most important crop is winter wheat, with an acreage of over seven millions and a yield of over three million tons. Sunny days with temperatures well into the 60's are ideal for this. Altogether, food crops account for over two-thirds of the cultivated area (over 19 million acres), summer crops being gram ($1\frac{3}{4}$ million acres), which resemble peas and are dried; bajra, a variety of millet ($1\frac{1}{4}$ million acres); maize ($\frac{1}{2}$ million acres), and rice (900,000 acres). The chief non-food crop is cotton, grown in the summer on $1\frac{1}{2}$ million acres, with a yield of about $\frac{3}{4}$ million bales of 400 lb. It is long-stapled and of much better quality than that grown on the Deccan. Sugar-cane is another important crop.

The capital, Lahore (population, 640,000), is situated in the north-eastern area and is the control point of the irrigation system. Not far away, is Amritsar (population 390,000) and in the south-west is Multan (population 135,000). Sialkot is an important centre for the manufacture of sports' goods, many cricket balls and footballs being exported to Britain.

The Lower Indus Valley, or Sind

This valley is a region very much akin to Egypt or Iraq. Indeed, it is known to have been the home of a civilisation

exhibiting many of the features of those of the other two river-ain lands and flourishing about 3000 B.C. There is evidence of trade between the Tigris and Indus Lowlands, for Sumerian seals have been found in the ruins of Mohenjo-daro and the

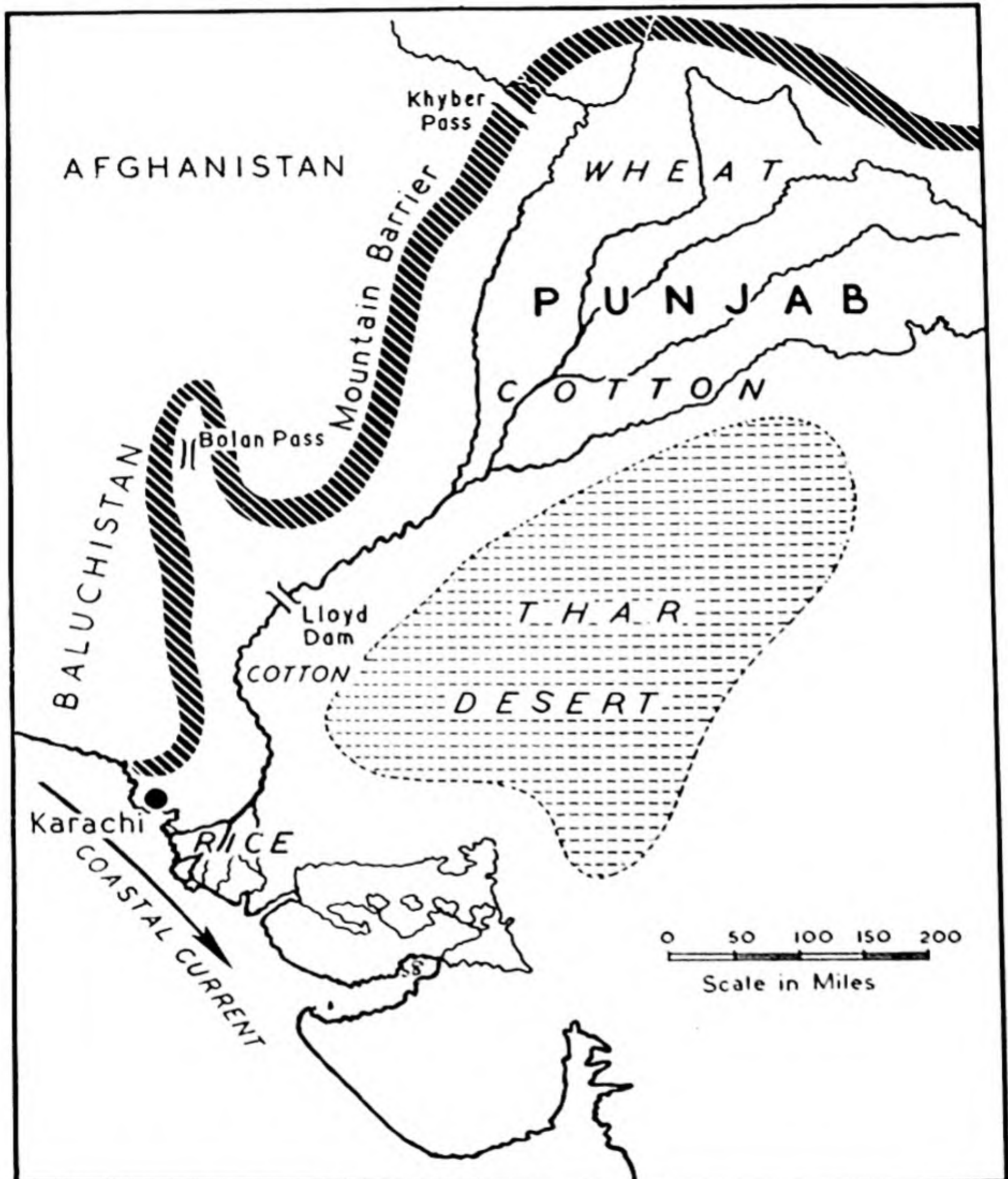


Fig. 31. THE PUNJAB AND THE NORTH-WEST FRONTIER.

Babylonian word for cotton was *Sindhā*, Indian cotton being grown in the gardens of Nineveh.

In a region where the rainfall is less than 5 in. and the summertime day temperatures often exceed 110° F., it is

obvious that the Indus must have a big part to play in any development scheme. Until recently the whole of the area was a land of thorn bush and jungle-grass near the river, with areas of desert farther away extending into the Thar of Rajputan and which covers the region to the eastwards nearly as far as the Aravalli Hills. Much of the area is still very primitive, with water-wheels worked by oxen, and camels as the chief means of transport.

The Indus is not so easy to control as the Nile and in the summer flood it tends to change its course, but an effort has been made to check this by planting trees. The most ambitious irrigation scheme in India is to be completed by 1962. Already $3\frac{1}{2}$ million acres have been brought into cultivation by means of the Lloyd Barrage at Sukkur, which will ultimately irrigate $5\frac{1}{2}$ million acres. It is nearly a mile long and has 66 arches. From it four canals lead off from the left bank and three from the right. The main winter crop is wheat which has increased from under half a million acres before 1932 to $1\frac{1}{4}$ million acres in 1946. The main summer crop is cotton which is of the best Egyptian quality, *i.e.* long-stapled. From just under a quarter of a million acres in 1932, the area under cotton increased to three-quarters of a million acres in 1946. In the lower reaches of the river, and on the delta, there are nearly $1\frac{1}{4}$ million acres of rice fields. This is the last area of the Indian sub-continent capable of relieving the pressure of population, so that it may be expected to fill up quite quickly. Sind is one of the healthiest regions of Asia, for its death rate is only 11 per 1000 compared with 23 per 1000 for the whole of India. In Sind there has been a large-scale revival of homespun cotton and woollen cloth production.

Karachi (population 1,000,000) is by far the most important town in Pakistan and its importance will be very much greater now that it has become the capital of Pakistan. It is not a very obvious choice from the geographical point of view because it is not central and it is far away from the important Punjab. As it is the only large town of the new Dominion it was the only one which could accommodate the newly created Government Departments and house the civil servants, most of whom were transferred from New Delhi. Even then

there has been much overcrowding. Rawalpindi has already been suggested as a preferable site.

Karachi first developed as a military port for troops and stores destined for the North-West Frontier and Baluchistan. It has now become a big exporter of hides, skins, wheat, and flour, as well as having a large salt industry. It is a great airport on the route from Europe to the Far East. Its economic importance is bound to grow as the productivity of the Indus Basin increases.

THE MOUNTAIN RIM

The western mountains are dry and scrub-covered, supporting only sheep and goats. They are inhabited by such wild tribesmen as the Waziris, who have to be prevented from making periodic forays on to the neighbouring plains in search of booty in the manner of their ancestors. In some of the valleys poor crops of wheat, barley, millet, and lucerne are grown but their outstanding product is fruit, especially peaches, apricots, and grapes. Mekran produces particularly fine dates. The total population is sparse, averaging about six to the square mile. The only important centre of population is Quetta, the garrison town defending the western approach to the Bolan Pass.

The North-Western Frontier area is a steppe-land with about 70 people to the square mile. Owing to its strategic importance in the defence of India, most of the British Army in India was stationed there, Peshawar being the chief garrison town. A caravan route leads to it through the Khyber Pass and every year hundreds of traders arrive bearing the goods of Central Asia, which from Peshawar they take to all parts of India.

BALUCHISTAN

Upon the cessation of British rule in India, the ruler of Baluchistan, whose territories had been under British protection, opted to join Pakistan. The province may be divided into five areas:—(1) the North Chagel Hills, forming the bulk of Afghanistan; (2) the Kharan depression, an enclosed low-land receiving the drainage of the surrounding mountains by streams that lose themselves in the sand or in the salt lake of Makeotag, which occupies the lowest part of the basin in the

extreme west; (3) the Central or Sulaiman Range which forms a barrier dividing the country into the north-western and south-eastern sections and through which runs the well-known Bolan Pass connecting Southern Pakistan and Kandahar (Afghanistan); (4) a part of the Indus lowland which forms a wide re-entrant penetrating north-westward towards the Bolan Pass; and (5) the undulating Mekran lowland facing the coast. This area is drained by several short and swift streams along whose banks are to be found a few inland settlements. The climate is so extreme and the rainfall so light that there are only about 900,000 people in an area of 135,000 square miles. The chief crops are wheat, barley, millet, and fruits. The last named are widely grown, especially grapes, apricots, and peaches. Mekran is particularly important for dates.

The only important town is Quetta, with a population of 70,000. It is mainly a garrison town in a strategic position on the far side of the Bolan Pass. As it is near the great bend in the Sulaiman Range it is in an area of instability of the earth's crust and is liable to earthquakes.

CHAPTER X

CEYLON

This pear-shaped island (newest self-governing Dominion of the British Commonwealth) has an area of 25,000 square miles and an estimated population of 7,540,000 (1950). This makes the average density of population 302 to the square mile, the great majority getting a living from agriculture. Of the total population about 4,000,000 are Sinhalese, as the Dravidian natives are called. In the south-eastern corner are the Veddas, who are of an even earlier race. There are also about 750,000 Tamils, Dravidian immigrants from India and mainly plantation workers. The next largest group is formed by the Arabs who number about 325,000. They remind us of the commercial leadership their ancestors held in the Indian Ocean. They are now chiefly engaged in the coastal shipping trade. The main religion is Buddhism which made far greater headway here than in its founder's native India. Indeed, the Temple of Buddha's Tooth is visited by pilgrims from all over the Far East—the "tooth" being a great ruby. The Arabs, of course, are Muhammadans and the Veddas are still heathens.

Ceylon was once part of the Indian mainland from which it is separated by Palk Strait. The coral Adam's Bridge forms a chain of island links. The reef is covered by only a few feet of water at high tide, but three channels have been cut through it for the use of coastal traffic. Ocean-going vessels are forced to skirt the east coast of Ceylon. It derives its name from the Sinhalese legend that the world was populated by Man spreading to the Indian mainland and thence to the other lands by using the islands as "stepping-stones." As a matter of fact, the island was probably populated by several waves of people moving in the opposite direction. The two largest islands—Mannar, off Ceylon, and Rameswaram, off the east coast of India—are crossed by railways which make the sea-crossing a very short one.

The outstanding relief feature is the high plateau which occupies the greater part of the wider southern half of the

island. It is formed by a mass of ancient crystalline rock similar to that of Southern India with which it was once continuous. Swift streams have eroded deep valleys which run in a general north-east to south-west direction. In some parts there are large flat areas hemmed in by mountains. Many of the latter rise to over 7000 ft., including Mount Pedrotallagalla (8326 ft.) and Adam's Peak (7360 ft.). Rivers radiate in all directions from the highlands and at fairly even intervals, but they are of no great importance.

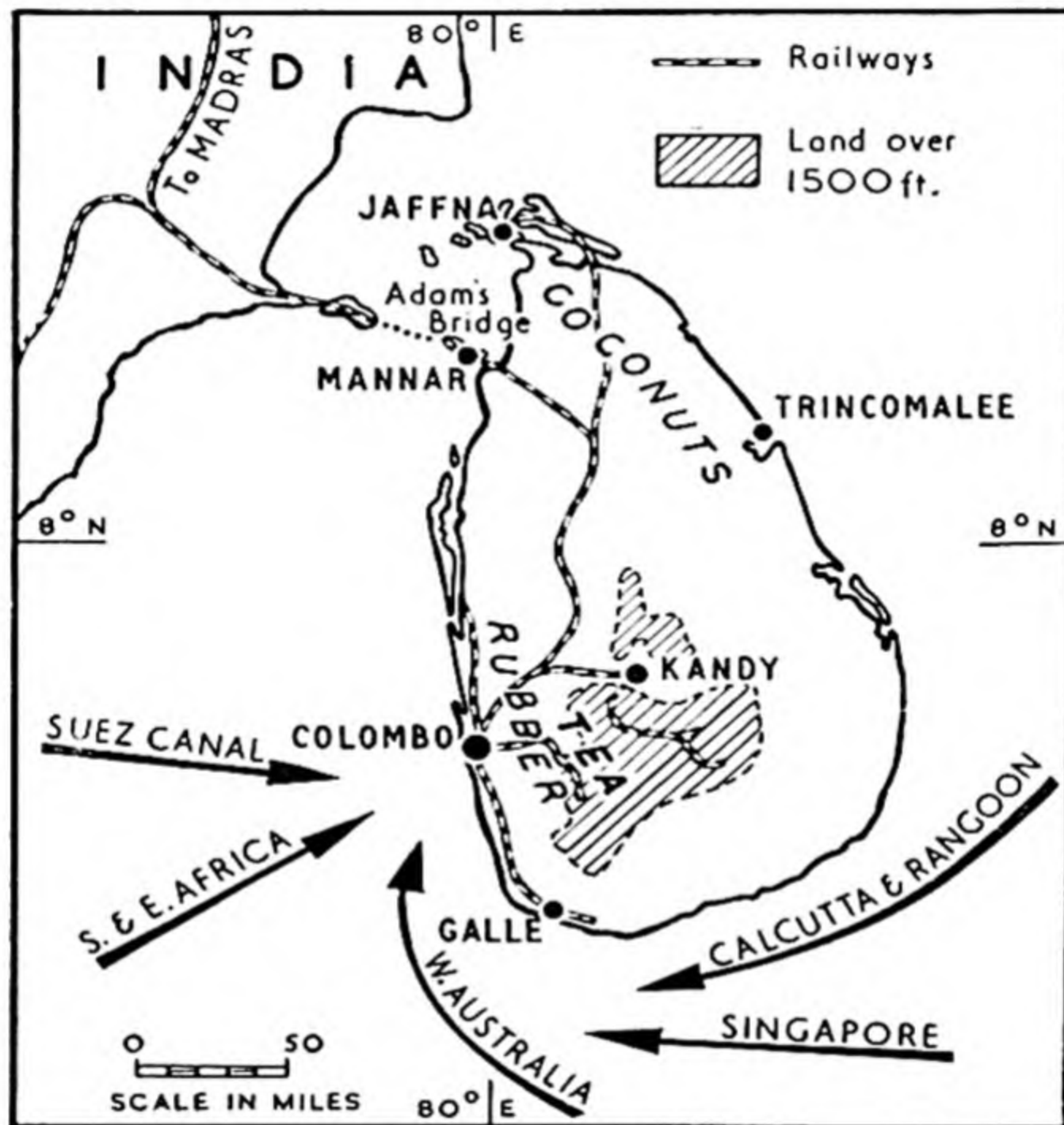


Fig. 32. CEYLON.

Surrounding the plateau to the west, south, and east there is a relatively narrow coastal plain which is undulating in character. It is composed of laterite, a red rock which forms a fertile soil. Breaking through the laterite there are upthrusts of more resistant crystalline rock which form isolated hills. The northern portion consists of a limestone lowland which is less than 300 ft. above sea-level. It is the least developed and most sparsely populated part of the island.

Climatically Ceylon is grouped with the Equatorial lowlands although much of it is highland where the average

temperatures fall below 64° in winter. In the north-eastern area there is an autumn maximum of rainfall derived from the north-east monsoon. Owing to its relief, the least rainfall is recorded in the north-west, where it averages 40 in. Conversely, the highest average is in the mountainous part of the south-west, where it exceeds 200 in. The south-eastern coastal plain has a relatively low rainfall. On the plateau itself there is a great deal of mist which often persists for some weeks.

Colombo (see Table, p. 23) has an abnormally low average diurnal temperature range of 9° F. In the summer months it is only 4° F. owing to the modifying effect of the south-west sea winds upon the day temperatures.

The greatest agricultural area is devoted to coconut palms which provide valuable exports of copra, coconut oil, and coir (coconut matting). They are grown in the foothills and more especially all round the coast, particularly near Colombo. Ceylon has the reputation of growing the best coconuts in the world.

The second greatest acreage is under rice, which is the chief food product. Even so, there is insufficient rice for the island's needs, and normally extra supplies have to be imported from Burma. The rice is, of course, grown mainly on the coastal lowlands, especially in the south-west. There was, at one time, a considerable production in the north-east where the fields were irrigated from "tanks" (primitive reservoirs), but those fell into disrepair and only recently has any effort been made to bring them back into use. Even the plateau edge has been terraced for rice, so urgent is the need.

Rubber, which was first introduced in 1876, is mainly produced in the wet south-western coastal lowlands and foothills. It provides about 7 per cent. of the world's total output. Tea is the most valuable product and provides about 65 per cent. of the island's exports. Most of the plantations are on the south-west of the plateau especially near Kandy. It is also grown in the foothill country. So great is the demand for labour for the picking that many hundreds of Tamil workers are brought over from south-eastern India. The larger companies make elaborate arrangements for their accommodation and welfare. Incidentally, most of the workers on the rubber estates are also Tamils.

Cinnamon was originally the chief commercial product, but there is not such a great demand in these days. It is grown in coastal areas where the soil is light and sandy. Other products are areca nuts and citronella. There are 1,200,000 cattle, mainly used as draught oxen, and there are nearly 400,000 goats.

AGRICULTURE OF CEYLON (1950)

PRODUCT	ACREAGE
Coconuts	1,100,000
Rice	900,000
Rubber	650,000
Tea	560,000
Cacao	34,000
Cinnamon and Citronella	60,000

The chief mineral wealth is plumbago (graphite) which is used mostly in the manufacture of lead pencils and black lead. Rubies and sapphires are found on the south-western mountain slopes in alluvial deposits and are quarried. Pearl-diving is carried on by Tamil divers near Mannar.

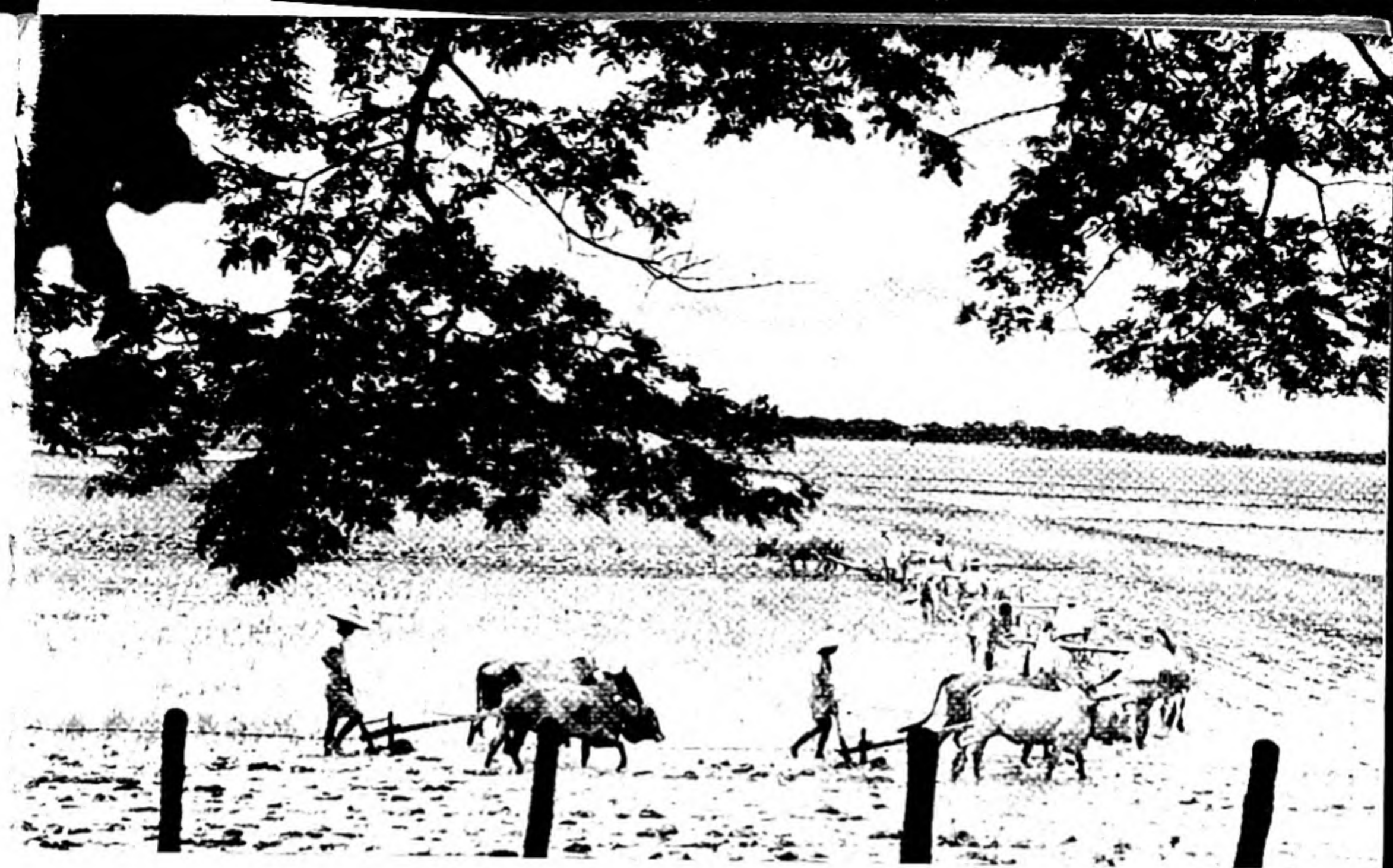
There has been a certain amount of industrial development in recent years, *e.g.* there are cotton weaving mills at Moratuwa and Jaffna, using cotton imported from India, and there are soap works, coconut matting factories, and rolling mills.

Colombo (population 360,000), the chief port and modern capital, is situated on the south-west coast. It is an extremely important focal point of Indian Ocean trade routes owing to its position near the southern end of the Indian peninsula which divides the Bay of Bengal and Arabian Sea. It is linked with the Red Sea, Bombay, Calcutta, Rangoon, Singapore, East and South Africa, and Fremantle. It handles nearly the whole of the trade of Ceylon and is an important refuelling centre. From it 950 miles of railways radiate, northwards to Jaffna with a branch to Mannar Island, southwards to Matana, and eastwards on to the plateau to Kandy, the old capital, and to the hill-station of Nuwara Eliya (Neuralia). There are also about 5000 miles of metalled roads as well as about 120 miles of canals along the south-west coast, built by the Dutch. The harbour is an artificial one, the largest in the world, with great breakwaters protecting it from the south-west monsoon.

Trincomalee, on the east coast, has one of the finest natural harbours in the world, but it is of little commercial importance apart from coastal trade. It is, however, of great strategic value and has been developed as a naval base.

The chief exports are—tea (£48 million), rubber (£8 million), copra (£1·3 million), coconut oil (£8 million). The chief imports are rice, cotton goods, coal (from S. Africa), sugar, and fertilisers.

The Maldives are a group of 12 coral atolls about 400 miles to the south-west of Ceylon and are a dependency of the Dominion. They have a population of 93,000, chiefly Muhammadans. They are great sailors and traders, exporting fish to Ceylon. The islands produce coconuts and millet.



Above: BURMA. PLOUGHING PADDY FIELDS. (Topical Press.)

Below: TEA-GROWING IN CEYLON—PICKING THE LEAF. (Exclusive News Agency.)



Above SINGAPORE. RIVER SCENE. (*Topical Press.*)

Below RANGOON. AN AERIAL VIEW OF THE HARBOUR. (*Exclusive News Agency.*)

CHAPTER XI

BURMA

Burma consists of a series of north-south fold ranges separated from each other by parallel valleys. The Arakan Yoma runs quite close to the west coast. It exceeds 10,000 ft. in the north, but dies away to 1000 ft. in the south. It is bordered in the east by the Chindwin—Lower Irrawaddy Valley. Then follows a much lower and more broken range, the Pegu Yoma. We have seen how the Irrawaddy has made one big break in the Mandalay area. The next valley is that of the Upper Irrawaddy and the beheaded Sittang. The extreme east is composed of the Shan (mountain) States where there is a succession of ridges and valleys, the outstanding feature being the Salween Valley. The south-west of Burma consists of the vast delta of the Irrawaddy, which is continued by the Sittang estuary lands and the Salween Delta. Extending far to the south-east on to the base of the Malay Peninsula, which is shared with Siam, is the Tenasserim Province, a narrow coastal area backed by the Bilankiang Range.

The climate is much affected by the relief which is at an angle to the prevailing winds at both seasons. Although the rainfall occurs mainly in summer, the Chindwin Valley has an average much below that of the remainder of the country because it is in the "rain-shadow" of the Arakan Yoma in the highest part. Members of the 14th Army during the campaign of 1944 were amazed to find themselves in a semi-desert in north-west Burma, a complete contrast to the steamy jungles of the north-east of India. Some indication of the difference is seen on comparing the rainfall of Rangoon (99 in.) with that of Mandalay (35 in.).

Much of Burma is densely forested, especially on the windward sides of the mountain ranges. The forests yield valuable supplies of teak, mainly used in ship construction and also in the benches of chemical laboratories, as it is acid resisting. In an average year about 300,000 tons are felled in the 32,000 square miles of forest. Much of the hauling and stacking of logs is done by elephants.

By far the most important crop is rice, which is mainly grown in the wetter areas of the north and south, although there are many thousands of acres of irrigated land in the centre. One of the finest rice-growing areas is the Akyab district, a narrow coastal strip to the west of the Arakan Yoma. This is watered by many rivers whose deltas combine to provide extensive belts of very fertile soil. In all there

are some 12 million acres under rice, and the yield is half a ton to the acre. Burma normally exports over half its rice and is easily the leading exporter in the world. Most of it goes to India, which in the recent war suffered badly from famine when deprived of this regular source of supply. Normally Britain also buys most of its rice from Burma. There are large acreages under oil seeds (sesamum and groundnuts), cotton, maize, and tobacco. A small quantity of rubber is produced in Lower Burma.

Burma is rich in minerals, oil being the most important. About

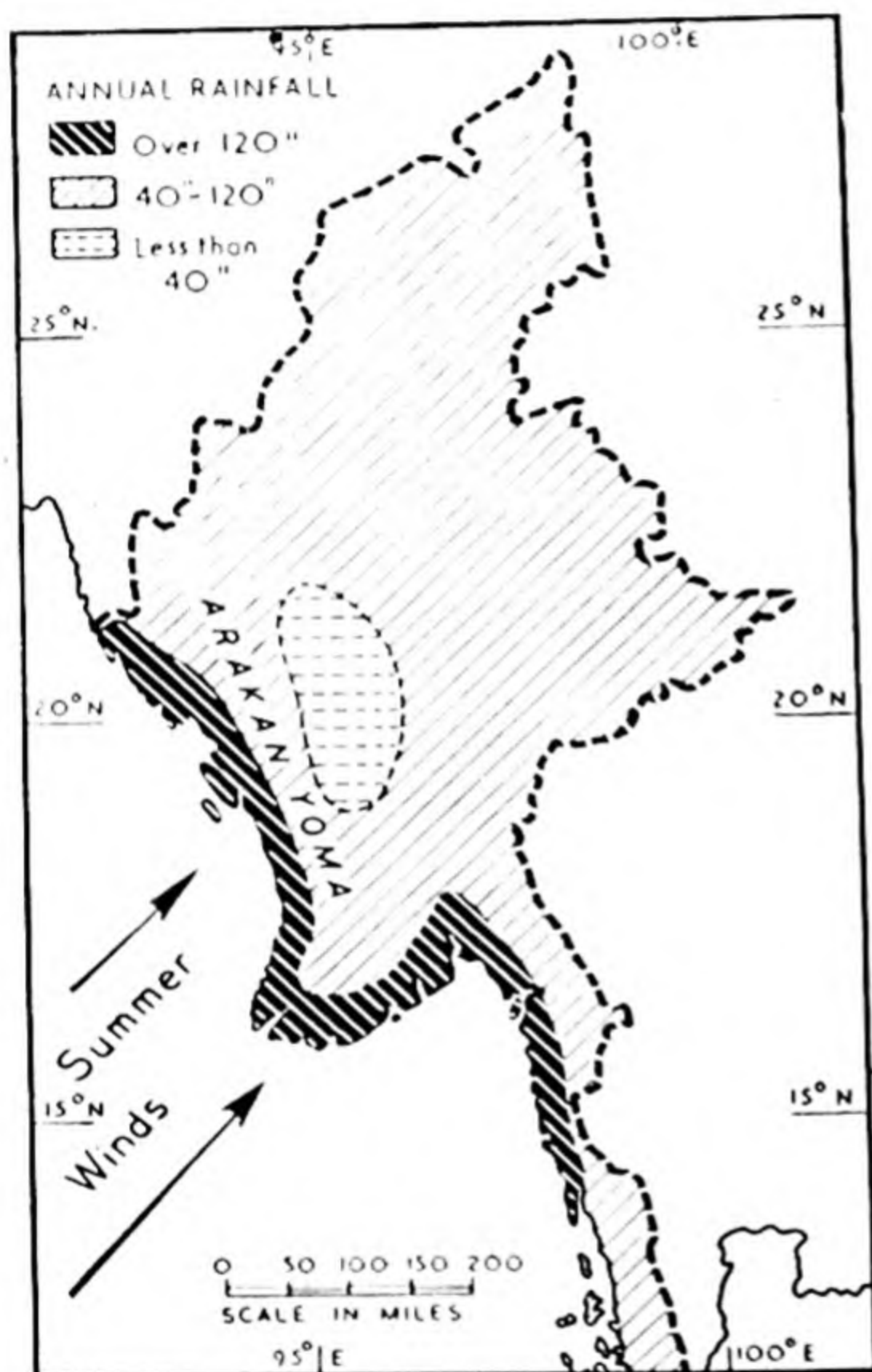


Fig. 33. BURMA—ANNUAL RAINFALL.

250 million gallons are produced annually in the fields near Mongwa in Central Burma. Tin is mined in the Tenasserim district of the south-east, especially in the Tavoy Valley, and there are important silver mines in the northern Shan States. Other minerals are lead, zinc, tungsten (10 per cent. of world total at Mawchi), salt, and rubies and sapphires. The only important manufacture is that of matches.

Much of the communications are carried on by water, for the Irrawaddy is navigable to Bhamo (900 miles) and the Chindwin for 300 miles from the confluence. The chief railway runs from Rangoon up the Sittang Valley to Mandalay, an important junction for lines to the north-west (oil-fields), north to Myitkyina, and north-east to Lashio, from which the "Burma Road" opened up a new route to China during the Second World War. Now it is hardly used and is rapidly falling into a state of disrepair.

Rangoon, the capital, has a population of 400,000. It is situated on the easternmost branch of the Irrawaddy Delta some 25 miles from the mouth. It is so placed that it receives the trade of both main valleys and thus exports the bulk of Burmese surplus products. This trade is mainly with India, and is carried on by sea owing to the barrier of the Arakan Yoma. Akyab (37,000) is the chief port of the west coast. It is situated on the east of an island just off the mouth of the Kelantan River.

The population of Burma is $16\frac{3}{4}$ millions, 12 millions of whom are native Burmese of Mongolian origin, and nearly all Buddhists. There are $1\frac{1}{2}$ million Karens, originally hill men of the south-east but now living chiefly in the south-eastern plains. The 1,200,000 Shans live in the Shan States and the 1 million Indians who have immigrated have mostly settled in the cities, where much of the trade is in their hands. They are not liked by the Burmese who resent their influence upon affairs.

In January 1948, Burma severed its connection with the British Empire and became an independent republic. The new Burma has several serious problems to face, *e.g.* how to restore quickly the economy of the country whose chief industries—rice growing, oil mining, and tin-dredging—had been so badly interfered with during the 1944-5 campaigns. Another problem arises from the widespread dacoitry, *i.e.* the plundering and murdering gangs which wander about the country districts. Finally, there is the question—How can the various ethnological elements be welded together politically as Burmese whilst still retaining their essential social and cultural differences?

CHAPTER XII

MALAYA AND THE EAST INDIES

Since the liberation from the Japanese there have been political changes throughout this area. Malaya has been reorganised so that the Federated and Non-Federated Malay States and the Straits Settlements have been united as the Federation of Malaya. Only Singapore remains outside as a Crown Colony. Similarly North Borneo, Brunei, and Sarawak—the last-named hitherto ruled by the British Rajah under British protection—have been united into British Borneo. The Philippines have gained complete independence from U.S.A., and Indonesia has also obtained self-government.

The Malay Peninsula and the East Indian Archipelago form a geographical unit from nearly all points of view. Structurally they are part of the great system of fold ranges which girdles the world from North Africa and Spain to New Zealand. They are the remnants of a partly submerged land-mass, and have a high proportion of mountainous area. If you study the relief map you can trace the way in which the outline of the peninsula and the lines of islands have been created by fold ranges, and how shapes, sometimes grotesque, have been influenced by the radiation of ranges from central knots. Note how the line of the Andaman and Nicobar Islands is continued through Sumatra as the Barisan Mountains, Java, and the islands to the east. Similarly the “spine” of Malaya is continued through the Lingga Archipelago, Banka, and Billiton, and then swings north-eastwards to form the Schwaner Mountains of Borneo. Celebes Island provides the best example of a curious shape. It is caused by four ranges radiating from the central mountain knot of Latimojong (11,463 ft.). Borneo has been built up by a similar series of ranges radiating from the central knot of Batu Tiban with intervening valleys drained by the best developed river system in the whole of the area. In Malaya the mountains rise in the centre to nearly 7200 ft. (Mt. Tahan). To the south they fall away again and there are isolated uplands standing up

from an undulating lowland. Sumatra has the highest proportion of lowland, for the Barisan Mountains keep close to the south-west coast leaving the whole of the north-east as a wide plain. The area is much liable to earthquakes and there are many volcanoes both active and extinct. In 1883 the dormant volcano of Krakatoa Island blew its top off with a tremendous explosion, the worst eruption ever known. The sea rushed in and flooded the crater formed to a depth of 1000 ft., and every living thing was destroyed.

Climate

Climatically the whole of the area may be classed as an Equatorial lowland, although there are many modifications due partly to relief and partly to the monsoonal reversal of the winds. Pressure remains low and remarkably even throughout the year, *e.g.* both at Singapore and at Batavia it varies only from 29.8 in. to 29.88 in. Sea-level temperatures are very equable; the annual range is only 1.5° at Batavia and 4° at Singapore. The diurnal range usually amounts to about 12° . There are south-west winds in summer and north-east in winter over the greater part of the area. The mean annual rainfall is often higher than the average for the type of climate because, owing to the insular character of the area, both winds are rain bearing. Java and Sumatra have averages of over 120 in. of rain over most of their area. Monsoonal influences are also seen in the "seasonal distribution" of rain. Most places have their heaviest rainfall in the winter because in summer the south-westerlies strike the mountain rim before reaching the lowlands. This is very noticeable in the case of Malaya, sheltered by the Sumatran Mountains. The East Indies have a higher rate of thunderstorms than anywhere else in the world, so far as is known; Java has an average of over 200 in a year. Coastal areas are cloudy, averaging 7/10ths-8/10ths cloud area in the rainy season and 5/10ths in the dry. The area is particularly liable to typhoons, extremely violent storms in which the wind velocity reaches 120 m.p.h. They occur chiefly at the equinoxes and leave havoc in their tracks. In Malaya strong winds called "Sumatras" blow from the south at these same seasons.

Natural Vegetation

Most of the area is covered with dense jungle and there is a great variety of species of plant life, *e.g.* in Malaya 9000 types have been counted, including 3000 varieties of trees. On the lowlands the highest trees reach 150-200 ft.; beneath these there are others of about 100 ft., then smaller trees, and finally palms and ferns and ginger plants. The whole is bound together by giant creepers. Along the Malacca Straits there are mangrove swamps, but on the eastern coast of Malaya, where the rainfall is lighter, the forest is not so dense. Just inside this forest belt there are swamp lands. Indeed, about 1/10th of Malaya is covered with swamp. The only open spaces are in the interior where great grasses grow. They occur in former clearings where such crops as tapioca, mountain rice, and pineapples were cultivated until the soil became exhausted through over-cultivation. The islands are equally densely forested on the lowlands, but on the ranges the vegetation is of a more open nature with belts of savaña.

Economic Geography

Malaya and the Archipelago also form an economic unit. Between them they produce the greater part of the world's rubber and tin. The former is by far the most important commercial vegetable product. It is the latex of the tree *Hevea Brasiliensis*, a native of the Amazon selvas. In Malaya the giant grasses were a great nuisance to the rubber planters because the roots tended to choke the young trees; damage was also done by fire. At first great efforts were made to keep the land clear by weeding, but it was found that this destroyed the natural "humus" and impoverished the soil, so now the scrub is allowed to grow except immediately around the trees. Most of the plantations are owned by companies employing mainly Chinese workmen, who are, at present, in a very unsettled state owing to the success of Communism in their own country. The Chinaman overseas is very liable to follow the lead of his countryman at home and many of the younger men have taken to the jungle as guerillas. This has inevitably seriously affected the economy of the country.

The Indonesian Republic is also a large-scale rubber grower. Indeed, owing to the great increase in Indonesian-owned

plantations, as distinct from Dutch-owned, the output almost equalled that of Malaya just prior to the war. Immediately after the war Malaya gained a big start in the restoration of rubber output, but more recently Malaya has been handicapped by Communist terrorism and Indonesia has now taken the lead (see p. 179). With America producing nearly 900,000 tons of synthetic rubber a year there are now signs of over-production, a serious matter for the sterling area, as Malayan rubber is a big "dollar-earner." By far the most important island for rubber, as for most other agricultural products, is Java, which has the advantage of a very rich volcanic soil—there are over 50 volcanoes. In 1940 it produced half a million tons of rubber, about half of which was tapped on native plantations. Other producers are Borneo and the Philippines.

The chief food crop is rice. In Malaya it is nearly all "wet" rice grown in paddy fields on the western coastal plain. On the islands, owing to their mountainous nature, much of the rice is "dry," *i.e.* irrigated on terraces cut out of the hill-sides. In Java there were, in 1940, $9\frac{1}{4}$ million acres of "dry" and 900,000 acres of "wet." On the island of Bali irrigation schemes are drawn up by a committee of villagers whose instructions are rigidly obeyed. Three crops a year are obtained by communal work. When a man is busy on some other task for the community his fields are cultivated by his neighbours.

Coconut palms are also widely grown. In Malaya they are chiefly concentrated in the north-western and south-western coastal districts, most of them on Malay holdings. Conditions are so ideal that only about 4000 nuts are needed to produce one ton of copra as compared with 6000-8000 in most areas. Oil is extracted from the nuts by hydraulic presses and most of it is sent to Singapore. Coconuts are also the chief crop of the Cocos Islands, a group of small islands in the Indian Ocean, just over 1100 miles from Singapore. The Philippines are a major producer of copra and desiccated coconut.

More specialised products are: (1) Pineapples, grown in the extreme south of Malaya. Most of them are canned at Singapore for export to Britain. (2) Oil palms in Malaya and Java. (3) Tapioca in Malaya and Java. (4) Sago in Borneo. (5) Tobacco. In the hot moist air the leaves are

large and are used for rolling cigars which are made in Manila and Jakarta. (6) Cane-sugar in the Philippines and Java. The former produce about 900,000 tons and the latter about 1,500,000. Smaller quantities are produced in Malaya. (7) Tea, in Java, about 80,000 tons, mostly exported to Holland. (8) Coffee in Java and Malaya. (9) Betel nuts, product of the areca palms, in Malaya. They are very popular in the

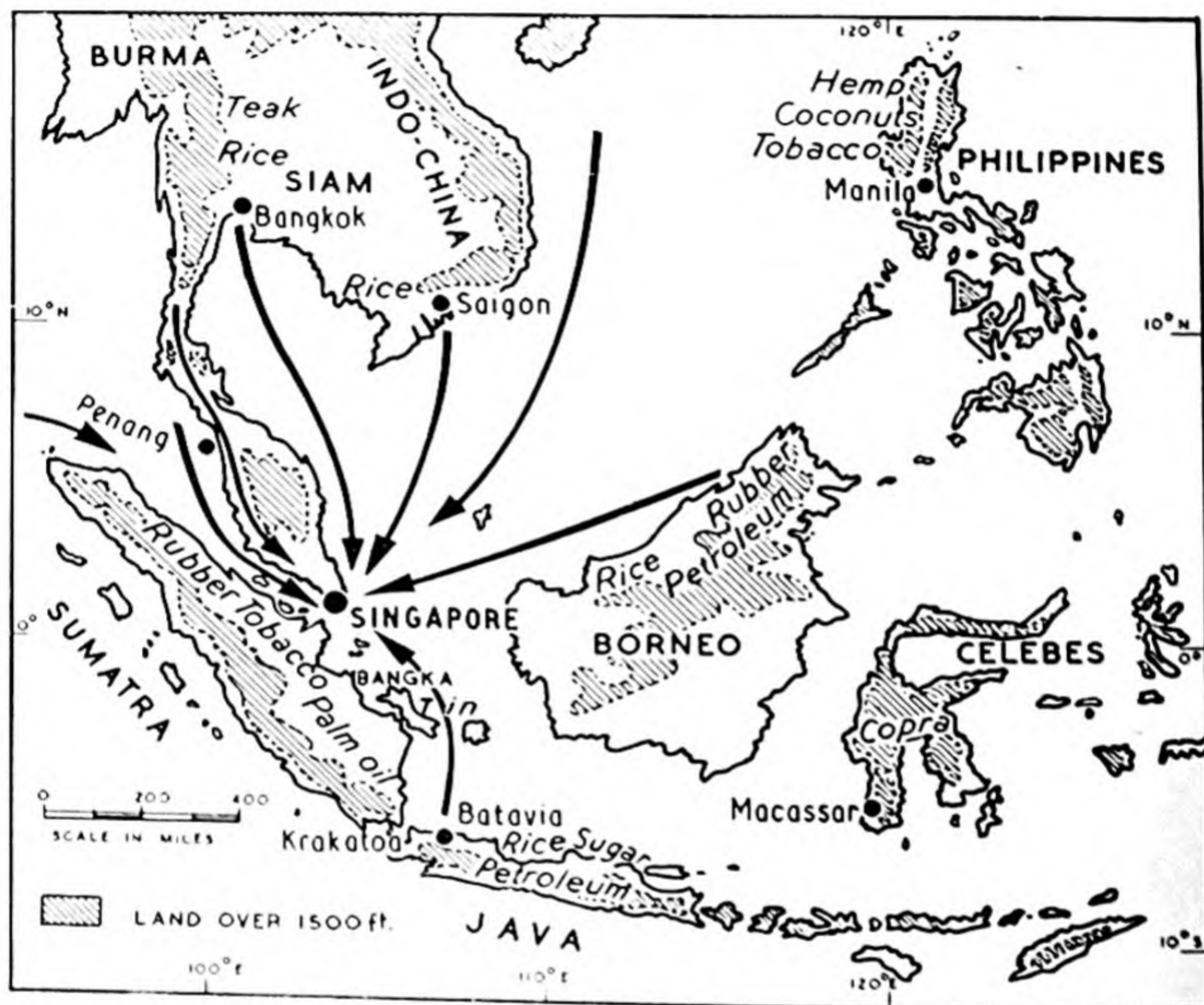
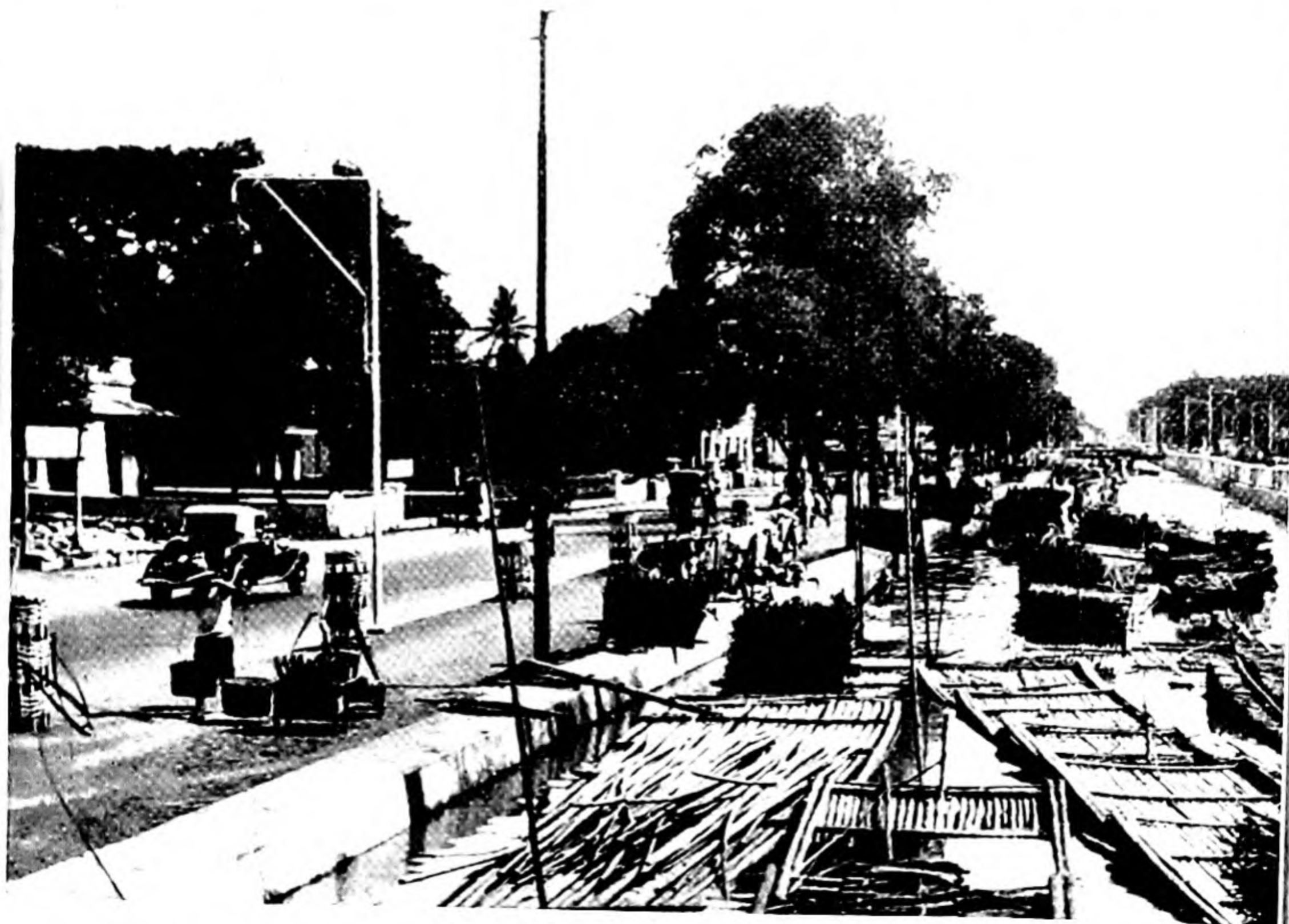


Fig. 34. ECONOMIC GEOGRAPHY OF THE EAST INDIES AND MALAYA. Note the importance of Singapore as an entrepôt.

East, where they are chewed, the red juice staining the mouth and lips. (10) Cinchona, from which quinine is obtained. Although a native of the Eastern Andes, Java now has a virtual monopoly, producing 16,000 tons in 1940. (11) Kapok, another Indonesian monopoly. It is obtained from the Ceiba tree which flourishes in the heat and rain and volcanic soil. The tree is grown chiefly on native plantations, very often as a border for rice fields, for it casts no shade. The fruit is



Above: THAILAND. A WATER STREET IN BANGKOK. (Donald McLeish.)

Below: HARBOUR SCENE, JAKARTA, JAVA. (Fox Photos.)



Below: SUMATRA. TERRACED RICEFIELDS. (Exclusive News Agency.)

Below: SARAWAK. A MELANO VILLAGE. (Exclusive News Agency.)

shaped like a cucumber, but is extremely light, about 15,000 pods yielding 136 lb. of the fibre which encases the seeds. The fibre is 15 times as buoyant as cork and carries 30 times its own weight, so it is much used in lifebelts and rafts. It is also used as a heat-insulator and surgical dressing. It is prepared in hundreds of small Chinese-owned factories and 25,000 tons are exported annually from Semarang and Sourabaya (Java) and Macassar (Celebes) to U.S.A., Australia, and Holland. (12) Manila hemp, used in the best rope, a monopoly of the Philippines and Borneo which produce about 100,000 tons a year. (13) Agar-agar is obtained from red sea-weed collected on the shores, especially of Java.

Yams and sweet potatoes are widely cultivated for native food. The forests yield a variety of products, not only cabinet woods, but also gutta-percha, gum, oil, resin, and bamboo canes.

The outstanding mineral is tin. As in the case of rubber, the area is the world's greatest producer. Malaya yields one-third of the world's total, 58,000 tons being obtained from the Federated Malay States in 1950. Much of it is gained by alluvial mining, *i.e.* by dredging the deposits at the mouths of rivers, or in middle reaches where inland deltas have been formed as streams leave the mountainous "spine." It is particularly important along the Kinta and Klang Rivers which flow out on to the mid-western coast. Actual mining of the tin lode is carried on in Pahang, one of the east coast States. Chinese again provide most of the labour, including a large number of women engaged in "panning," *i.e.* shaking the dredged material in shallow wooden dishes so that the heavy tin remains and the lighter rubbish is thrown out. This primitive and wasteful method is still in use on the many Chinese-owned workings. The Indonesian production amounted to 33,000 tons in 1950, most of it from the relatively small islands of Banka and Billiton with lesser yields from Riau and Sumatra.

Petroleum is a major product of the East Indies, about 7 million tons being obtained from Sumatra. Borneo is also a large producer, in the Dutch part, the chief fields being at Tarakan and Balikpapan. In British Borneo a very promising field is being developed on Mirara Island, which should greatly add to the yield already obtained from the

Seria and Belait fields of Brunei. There are indications of the presence of petroleum on several of the Philippine Islands.

Gold is mined in Malaya, in Aghin, the northern district of Sumatra, and in various parts of the Philippines. About two million tons of coal are mined annually in Java, Sumatra, and Borneo, smaller amounts in the Philippines and Malaya. There is an output of three-quarters of a million tons in

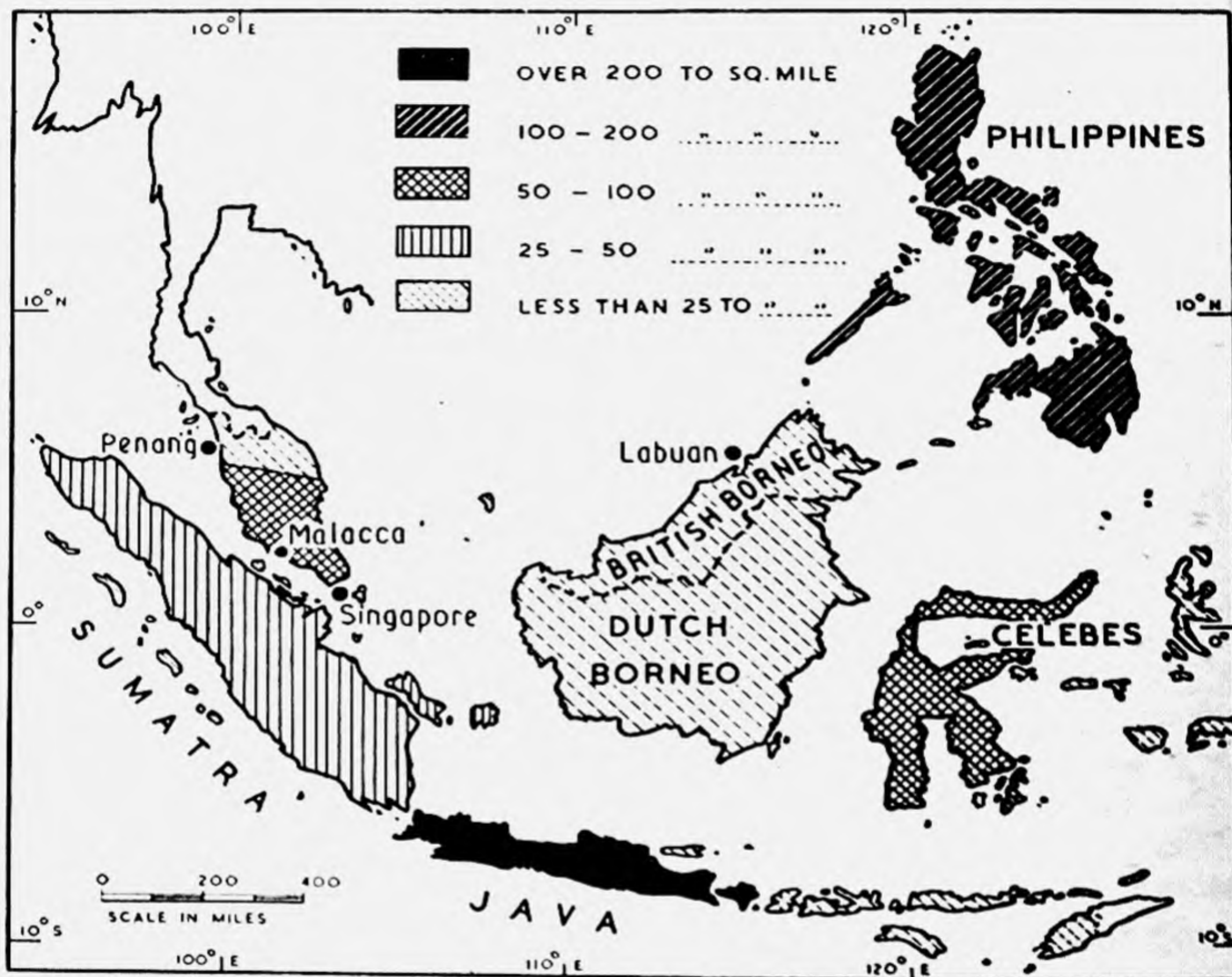
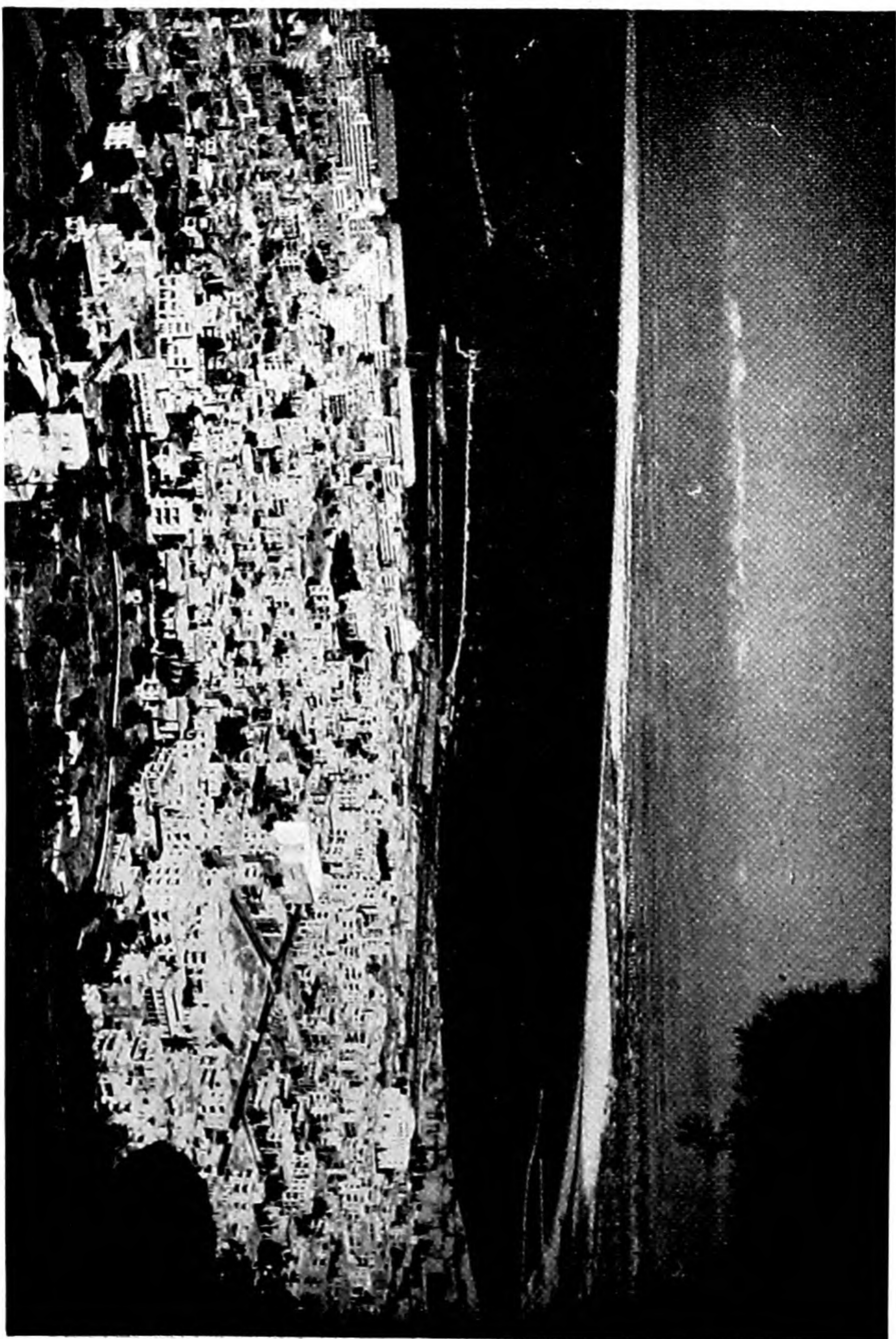


Fig. 35. EAST INDIES AND MALAYA—DENSITY OF POPULATION.

Selangor (Malaya), most of it being used by the tin-smelters of Singapore. Other minerals are tungsten (Malaya); manganese (Malaya and the Philippines); iron (Malaya and the Philippines); phosphates (Christmas Island, about 500 miles to the north of the Cocos Islands).

Birds' nests and bêche-de-mer (sea-slugs) are exported to China where they are prized as food.



VIEW OF THE NORTHERN END OF HAIFA. NOTE THE OIL STORAGE TANKS. (*Jewish Agency.*)

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Towns

About 90 per cent. of the trade of Malaya is handled by the three ports of Singapore, Penang, and Malacca, and of these the first named is by far the most important. It is situated on Singapore Island just off the southern tip of the peninsula and is in a commanding position on the Malacca Strait through which nearly all shipping moving between the Indian and Pacific Oceans passes. It was because of this strategic situation that it was converted into a powerful naval base. Singapore acts like Colombo as a focal point of routes, but it is even more important as an entrepôt. Coastal vessels bring rubber, tin, and other commodities, not only along either side of Malaya but also from all parts of the East Indies, to be transhipped to ocean steamers. Singapore is linked to the mainland, three-quarters of a mile away, by a causeway which carries road and railway. The latter passes up the west coast plain to Kuala Lumpur, Penang, and Alor Star, and thence to Bangkok, capital of Siam. A branch passes to the east of the mountain backbone to serve the eastern areas.

Apart from its position as commercial capital of South-East Asia, Singapore is the largest tin-smelting centre in the world and has important pineapple canneries. The population is about 1,000,000, of whom three-quarters are Chinese.

Jakarta (Batavia), the political and commercial capital of the Indonesian Republic, is situated in North-West Java and owes much of its importance to its proximity to the Sunda Strait, the only alternative sea-way between the Pacific and Indian Oceans.

Manila, capital of the Philippines, is situated on Luzon Island on an excellent harbour. It has a population of 700,000.

Distribution of Population

POPULATION TABLE I. BRITISH MALAYA

	AREA (sq. miles)	POPULATION	DENSITY (per sq. ml.)
Straits Settlements	1,356	1,143,790	844
Ex-Federated Malay States ..	27,540	1,813,893	66
Ex-Non-Federated Malay States	22,080	1,620,125	73
Total ..	50,976	4,577,808	89

POPULATION TABLE II. INDONESIA (1930 Census)

	AREA (sq. miles)	POPULATION	DENSITY (per sq. ml.)
Java and Madura	51,032	41,718,364	817
Sumatra	164,143	7,677,826	47
Riau-Lingga Archipelago ..	12,235	298,225	24
Banka	4,611	205,363	45
Billiton	1,866	73,429	39
Borneo	208,285	2,168,661	10
Celebes	72,986	4,213,906	58
Bali and Lombok	3,973	1,802,683	454
Total ..	519,131	58,158,457	108

N.B.—The Moluccas and New Guinea have been omitted as they are in no sense Asiatic. The total population of Indonesia in 1950 is estimated at 73,500,000.

POPULATION TABLE III. THE PHILIPPINES (1948 Census)

	AREA (sq. miles)	POPULATION	DENSITY (per sq. ml.)
Luzon	40,420	19,230,000	166
Mindanao	35,537		
Samar	5,050		
Negros	4,905		
Palawan	4,550		
Panay	4,446		
Total (including small islands)	115,600		

POPULATION TABLE IV. BRITISH BORNEO

	AREA (sq. miles)	POPULATION	DENSITY (per sq. ml.)
North Borneo	29,500	340,000	12
Brunei	2,300	40,000	17
Sarawak	50,000	550,000	11
Labuan	35	9,000	257
Total ..	81,835	939,000	11.5

Note that, apart from the average for Borneo, the density is above that for other Equatorial lowlands. In the Belgian Congo it is 10 to the square mile; in Amazonas (Brazil) it is 16. This is due to the greater facilities for economic

exploitation, the fewer transport difficulties, and a more favourable climate. Java, with its extremely rich soil, has the very high average of 817, equal to that of the industrial areas of North-Western Europe or North-Eastern U.S.A., and the agricultural lowlands of the monsoon area.

TABLE V. POPULATION OF MALAYA AND SINGAPORE BY RACES (1947)

	MALAY	CHINESE	INDIAN	EUROPEAN	OTHERS
Malaya ..	2,427,800	1,884,500	530,600	9,600	55,500
Singapore ..	123,600	789,200	72,500	11,500	18,700
Total ..	2,551,400	2,673,700	603,100	21,100	74,200

When we sub-divide the population of Malaya, we find that the native Malays are outnumbered by Chinese and Indian immigrants, who, as we have seen, were introduced chiefly for work in the rubber and tin industries. They now have a large share of the business of Malaya in their hands. This particularly applies to the Chinese, several of whom were, prior to 1942, numbered amongst

the richest subjects of the British Empire. There are also a few thousand Sakia aborigines who live in the less accessible mountain areas and who contribute nothing to the economic wealth of the country. They are self-supporting, getting a living by very primitive cultivation, keeping a few scavenging pigs and poultry, and collecting wild produce from the forest.

In Indonesia most of the inhabitants are native Indonesians but there is a higher proportion of Europeans in Java than in the other islands, as many Dutchmen have emigrated there. There are also over one million Chinese and a considerable

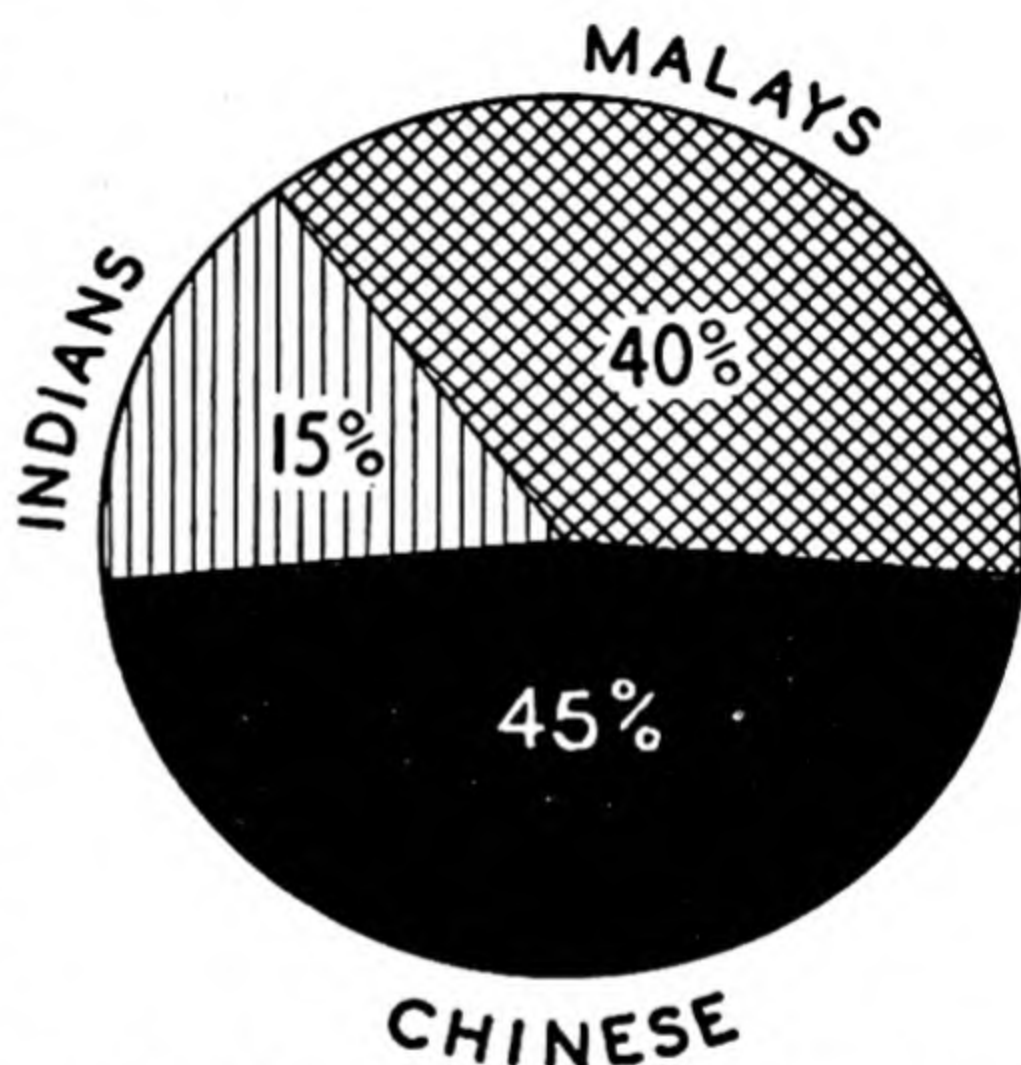


Fig. 36. RACIAL COMPONENTS OF MALAYAN POPULATION.

number of Arabs. The standard of civilisation amongst the Indonesian natives varies to a very considerable extent. There are the highly cultured Indonesian leaders at one end of the scale and the backward Dyak tribesmen, some of them still head hunters, at the other end.

Although much more highly developed than other Equatorial areas, there are still great potentialities, especially in the Indonesian islands other than Java, and in the Philippines and British Borneo. Much has been done to improve the lot of the peoples, especially with regard to their health. The American Rockefeller Institute has spent much on research into such tropical scourges as malaria, beri-beri, leprosy, and hookworm, especially in the Philippines, and the whole of the area has greatly benefited.

CHAPTER XIII

SIAM AND INDO-CHINA

Siam or Thailand

Siam extends from the Middle Salween in the west to the Mekong in the east. It is mainly a lowland country, being divided into the Basin of the Menam and that of the Mekong by a low and broken range which bisects the country from north to south. In the south-west corner there is a portion of the Malay Peninsula which divides Lower Burma from Malaya. The climate is typically monsoon, the rains falling mainly between June and October.

Agriculture is by far the most important occupation and rice by far the chief product. It is of the very best quality and although it is the main food of the people, there is a large surplus for export. Altogether there are some 9 million acres under rice, yielding about $4\frac{3}{4}$ million tons. Many coconuts are grown on the coast and other crops are cotton, pepper, and tobacco. In the southern areas rubber planting has increased in importance, the 1951 output being 108,000 tons. For transport, bullocks, buffaloes, and elephants are used.

In the northern mountains there are dense teak forests. When the rivers are full in summer the logs are floated down to Bangkok by the Menam, to Moulmein (Burma) by the Salween, and to Pnom Penh (Cambodia) by the Mekong.

Fishing is carried out in coastal areas, especially in the south-west. Here the villages, like those in many parts of the East Indies, are built on stilts with slits in the floor for the rubbish to be dropped through so that it may be carried off by the tide. Most of the fish are caught in great traps which cost about £1000 each and are owned by syndicates of merchants. The catch consists mainly of cuttle fish, mackerel, and crabs. Siam is rich in mineral wealth, especially tin and wolfram.

The communications are well organised. There are about 2000 miles of State railways, radiating from Bangkok northwards, north-eastwards, eastwards, and southwards along the peninsula to link up with the Malayan line to Singapore. Bangkok, the capital, is situated some distance up the Menam

River. It is the chief port but is handicapped by the bar at the mouth of the river. However, a channel is being cut through this that will double the draught of vessels able to navigate the river, *i.e.* from 13 ft. to 26 ft. The population of Siam is about 16 millions, nearly all of whom are Buddhists. Like the Burmese they are of the Mongol race.

Indo-China

French Indo-China consists of the self-governing Dominion of Viet-Nam (Annam, Tonking, and Cochin-China) and the Protectorates of Cambodia and Laos. There are three main geographical regions:—

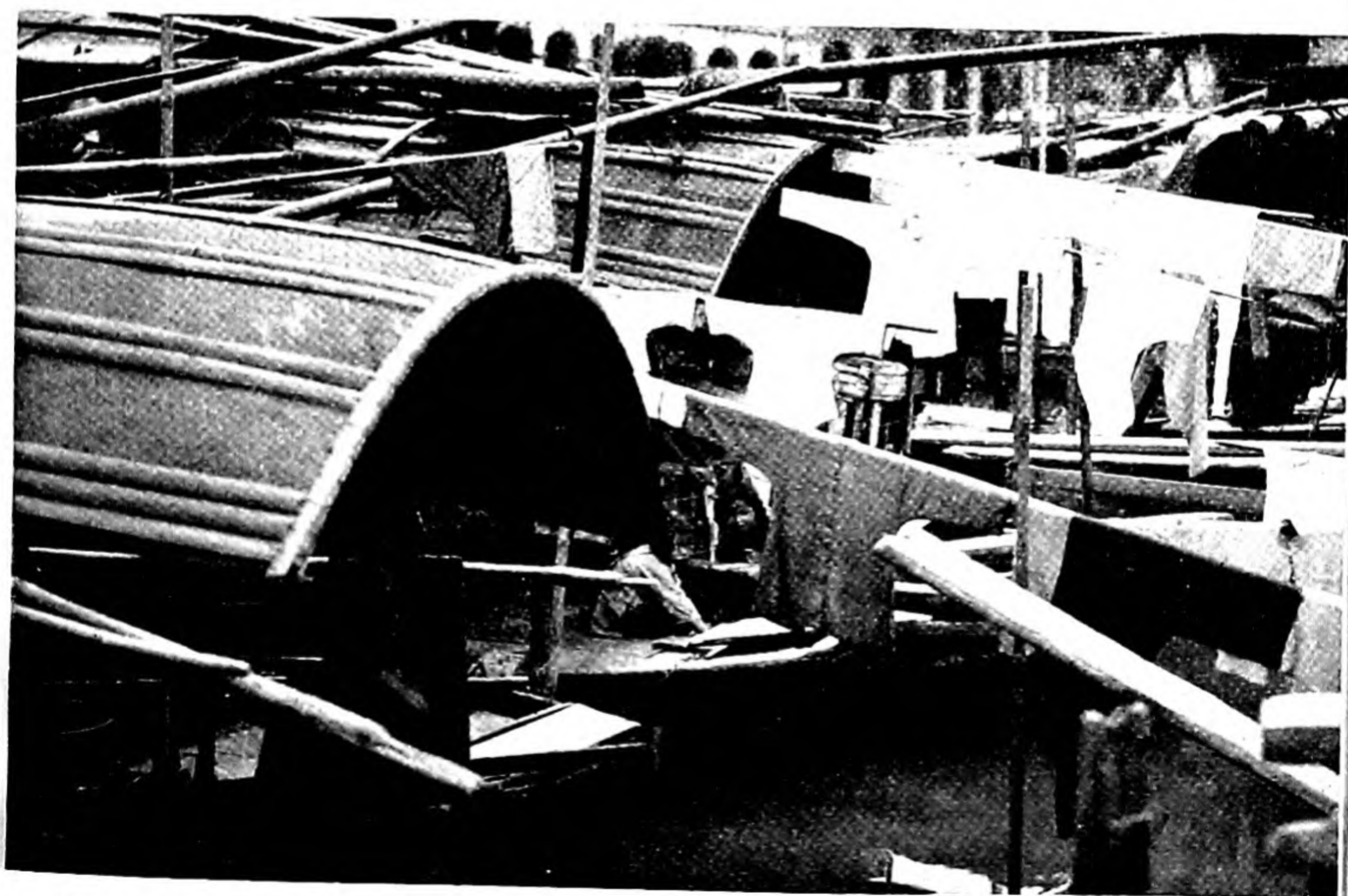
(1) The south-western or Mekong Basin, which consists mainly of Cambodia and Cochin-China with parts of Western Laos and Annam. This is very much like Siam in soil and climate and there is also a great rice-growing area. Most of it is grown in Cochin-China and along the south-east coastal plain of Annam where the Phanrang River is used to irrigate some 6000 acres. In Cambodia output is restricted by shortage of labour, an uncommon factor in the Far East.

TABLE VI. POPULATION IN INDO-CHINA

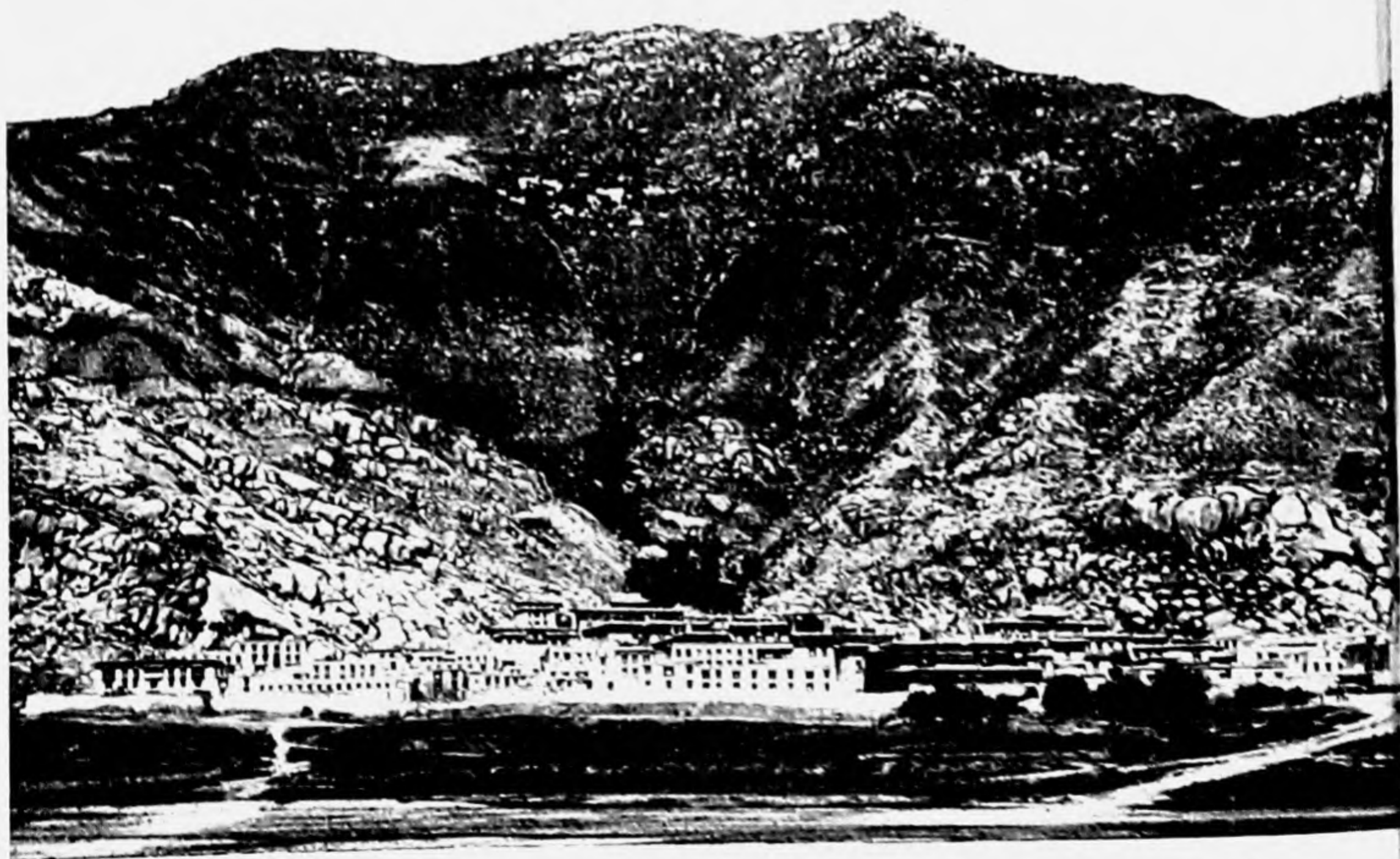
	AREA (sq. miles)	POPULATION	DENSITY (per sq. ml.)
Annam	57,000	6,500,000	114
Cambodia	68,000	3,250,000	48
Cochin-China	26,000	5,000,000	192
Laos	90,000	1,250,000	14

Rice is sent to Pnom Penh and to Cholon (Cochin-China) for milling and much is exported from Saigon. In southern districts of Cambodia and Cochin-China pepper is widely produced, entirely for export, and rubber is also common to both countries (1951, 53,000 tons). Cochin-China also produces cane-sugar, coconuts, bananas, pineapples, sweet potatoes, and betel nuts, the last being in great demand in South-Eastern Asia by the natives who chew them. South Annam grows cotton, cinnamon, tobacco, sugar, and manioc. Laos produces cotton and indigo.

Sericulture (the rearing of silk worms on mulberry leaves) is widespread throughout the area. River and sea fishing is



Above: CHINA, SHANSI PROVINCE. CLIFF DWELLINGS IN THE LOESS. (*Exclusive News Agency.*)
Below: SAMPANS NEAR CANTON. THOUSANDS OF POOR CHINESE USE SUCH CRAFT TO LIVE IN. (*Exclusive News Agency.*)



Above: SHEPHERDS OF THE TIBETAN HIGHLANDS. (Keystone Press Agency.)
Below: TIBET. THE SERA MONASTERY AT LHASA. (Exclusive News Agency.)

extensive in Cambodia and Cochin-China. The most interesting fishing industry is that of Toulé Sap on the Great Lake of Cambodia. In summer the full Mekong ponds back its tributary so that it spreads out to form a great sheet of water. In the dry winter the water drains away from the greater part leaving a very large number of ponds in which are trapped

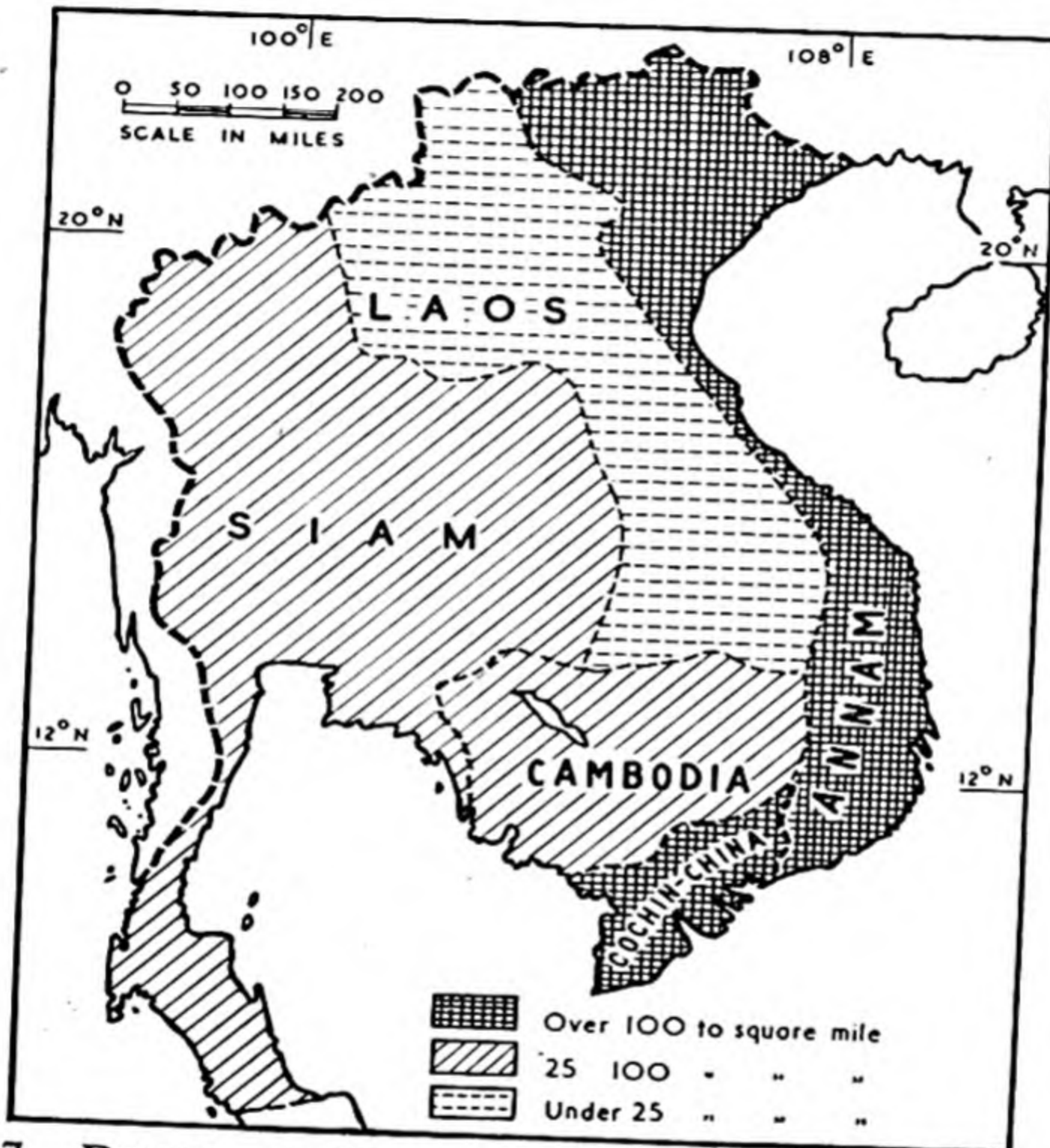


Fig. 37. DENSITY OF POPULATION IN SIAM AND INDO-CHINA.

great quantities of fish. These are salted or smoked mainly for export.

It is known that there are great resources of mineral wealth in Indo-China but this has not yet been greatly exploited. Cambodia has great possibilities in phosphates and jet is quarried. There are salt works in Southern Annam.

Saigon is by far the most important town and the chief port of this region, although it is situated some distance up a tributary of the Mekong Delta. Not far from it Cholon is an industrial centre, there being saw mills, soap factories, rubber and tyre factories, and fruit preserving factories. In

Cambodia the chief towns are Pnom Penh, the capital, at the confluence of the Mekong and Toulé Sap Rivers, and Kampot on the coast. The former has a cotton-ginning mill and rice mills, the latter a silk industry. Pottery and rush mats are made at other centres.

(2) The mountainous area of Northern and Central Annam with a very narrow coastal plain on which most of the people live. Along it passes the "Mandarin Way," which leads from the Chinese border to Saigon. This road enters Annam by the Gate of Annam which is only a narrow ledge between the mountains and the sea. The only relatively wide area is in the neighbourhood of Hué, the capital, where it is thought that rice was first cultivated. The town is situated in a vast natural park, but just behind it are the mountains which are inhabited by wild Mois who still use poisoned arrows. On some of the seaward slopes tea is grown, but timber and mineral wealth are the chief economic assets. Gold, copper, zinc, and coal are mined. There are nearly one million head of cattle in Annam, many in the coastal area. The only large port is Tourane situated to the south-east of Hué.

(3) The north-eastern area consisting of Tonking and parts of Northern Annam. This is an undulating area drained by the Red and Black Rivers which unite to form a common delta. The extreme north consists of a limestone region, the chief characteristic of which is the enormous blocks of limestone standing 100 ft. high and riddled by caves and tunnels—a typical karst which extends into Southern China. There are quarries—the stone being used for building and the making of cement. Other minerals are tin and anthracite. In the valleys rice is again the chief product, but arrowroot, sugar, maize, tea, coffee, and tobacco are also produced. Amongst the exports are castor oil and lac oil for the paint industry.

Hanoi is one of the finest towns in the Far East. It is the capital of Tonking, and is situated at the head of the Red River Delta. It replaced Saigon as capital of the whole of Indo-China. The chief port is Haiphong at the mouth of the chief delta distributary.

CHAPTER XIV

CHINA

The area of China proper is very nearly 3 million square miles, so that from the point of view of mere size it has an equal claim to the title "Sub-Continent" with India which is nearly 2 million square miles. On the other hand it is not nearly so isolated from the rest of Asia as is India, especially in the north.

It extends from latitude 20° N. to latitude 40° N. and from the edge of the Tibetan Plateau to the East China Sea. In the north-east there is an undulating lowland drained by the Lower Hwang-Ho and Middle and Lower Yangtse Rivers. Around this there is a crescent-shaped area of highlands extending from the south-east coast westwards across the country as the Nan Shan Range, and rising steadily towards the west where large areas of Yunnan exceed 6000 ft. and the Tailang Shan is over 12,000 ft. Along the western edge the Red Basin of Szechuan and the corrugated uplands of Shensi and Shansi overlook the lowland gradually hemming it in towards the north-east so that at the boundary with Manchuria it has dwindled to a mere coastal ledge, at the point where the Great Wall reaches the sea. In the extreme south of China the Si-Kiang and its tributaries have carved the upland areas into numerous ridges and valleys. The coast is much indented especially in the south-east where there are innumerable relatively small capes and bays as well as islands. Of the last, the only large one is Hainan, much of which is mountainous (Wuchi Shan, 5800 ft.).

In the north-east there are larger indentations, such as Hangchow Bay and the Gulf of Chihli. Most prominent coastal feature here is the mountainous Shan Tung Peninsula. This was once a group of islands, but the enormous amount of silt brought down by the Hwang-Ho has converted it into a peninsula.

Drainage

The rivers of China play such an important part in the lives of the people that they are worthy of special mention.

The Hwang-Ho or Yellow River rises far away on the north-eastern edge of the Tibetan Plateau in the province of Tsinghai and makes a very winding course to the north-east, where it crosses the loess plateau of Inner Mongolia and several times splits up into many channels. This loess is a vast deposit of wind-borne material, the accumulation of many thousands of

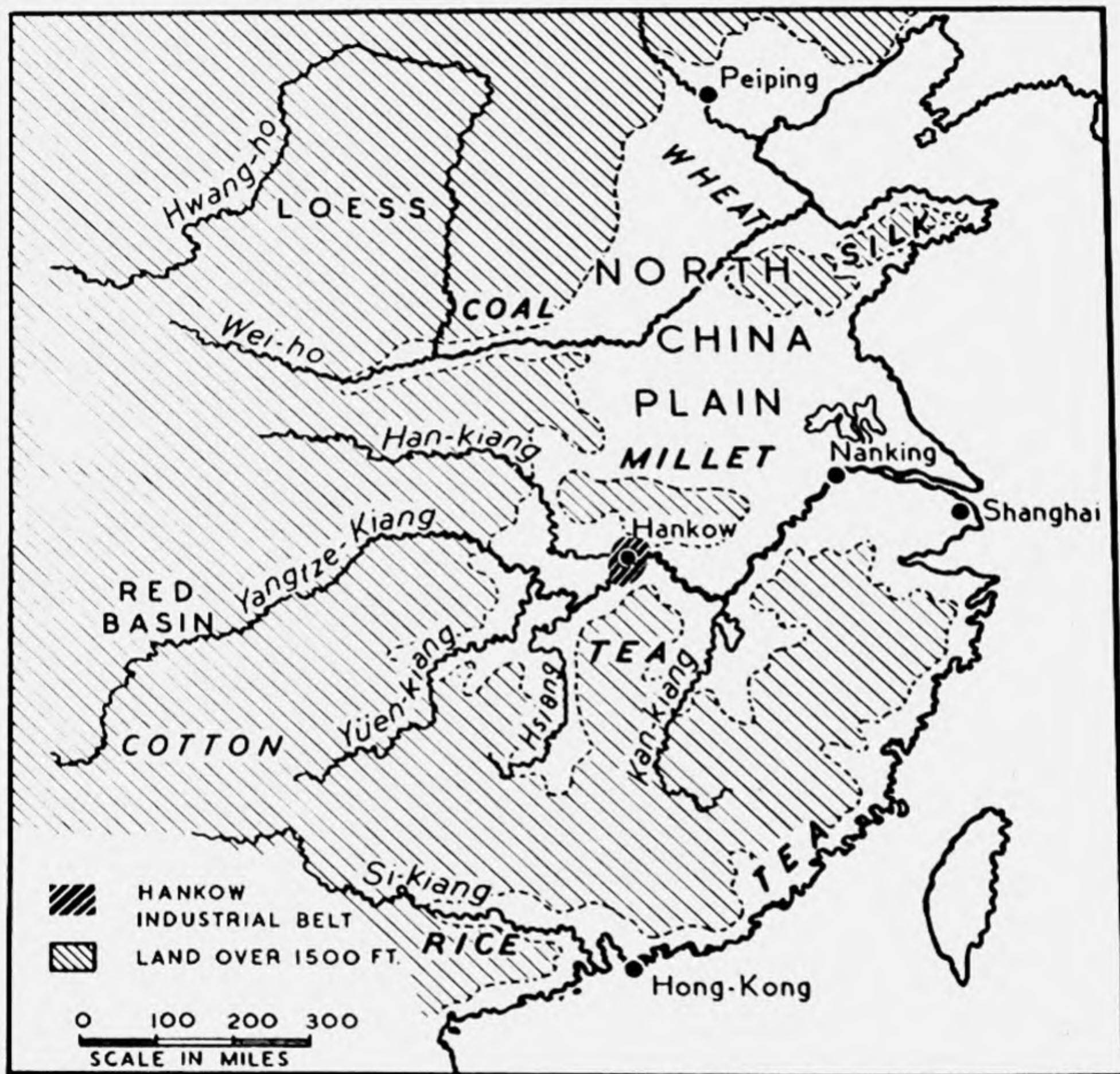


Fig. 38. CHINA—RELIEF AND PRODUCTS.

years brought by the north-west winds blowing from the Gobi Desert. Every year a new layer settles upon the old deposits and the scattered coarse grass forces its way through. The old stems decay, leaving cylindrical pipes which honeycomb the loess. This makes it extremely loose, as its German name indicates, so that rivers cut deep gorges and any regularly

used track quickly becomes worn below the general level to form "hollow" (*i.e.* hidden) roads. In the sparsely-populated area most of the people are troglodytes, *i.e.* cave-dwellers.

It then turns eastwards and southwards until it is joined on its right bank from the west by the Wei-Ho, after which it turns suddenly eastwards again. The Wei-Ho must have at one time been the main stream but it has long since been beheaded. However, its valley forms part of the caravan route between China and Central Asia. Soon after this confluence the Hwang-Ho enters its flood plain. It brings down tremendous quantities of yellow silt from the loess area and has built its banks well above the surrounding plain. Periodically it bursts these banks and floods huge areas, causing great damage and loss of life. It is estimated that on several occasions the floods have caused the deaths of over one million Chinese so that the river has earned the name of "China's Sorrow." One curious feature is the way in which after flooding, it has several times changed its mouth from the north side of Shantung to the south.

The Yangtse Kiang also rises in the north-east corner of the Tibetan Plateau but it soon turns southwards, flowing in a deep and narrow valley close to the Mekong and the Salween. On entering Yunnan it makes several "fish-hook" bends, signs of river-captures, and then turns north-eastwards to Szechuan where it crosses the Red Basin and receives several important tributaries such as the Min Ho which forms an inland delta or alluvial fan at the point where it leaves its mountain course for the comparatively level plateau. Leaving Szechuan by a gorge, the Yangtse enters the lowland and describes a zig-zag course along the northern edge of the South China Highlands. A feature of this part is the many large lakes, especially along the southern side, *e.g.* Tung Ting and Poyang Lake. These are caused by the parent stream having built up a much higher embankment than its tributaries so that these waters are ponded back until they have reached a sufficient level for them to flow away.

Climate

Climatically, of course, there is great variation between north and south, and between inland and coastal areas.

Briefly, we may distinguish between "three regions"—south-eastern coastal area, north-eastern coastal area, and the western interior. The first-named may be defined as the region south of a line drawn from the coast at latitude 30° N. to the border of Tong King at its nearest to the Tropic. Here

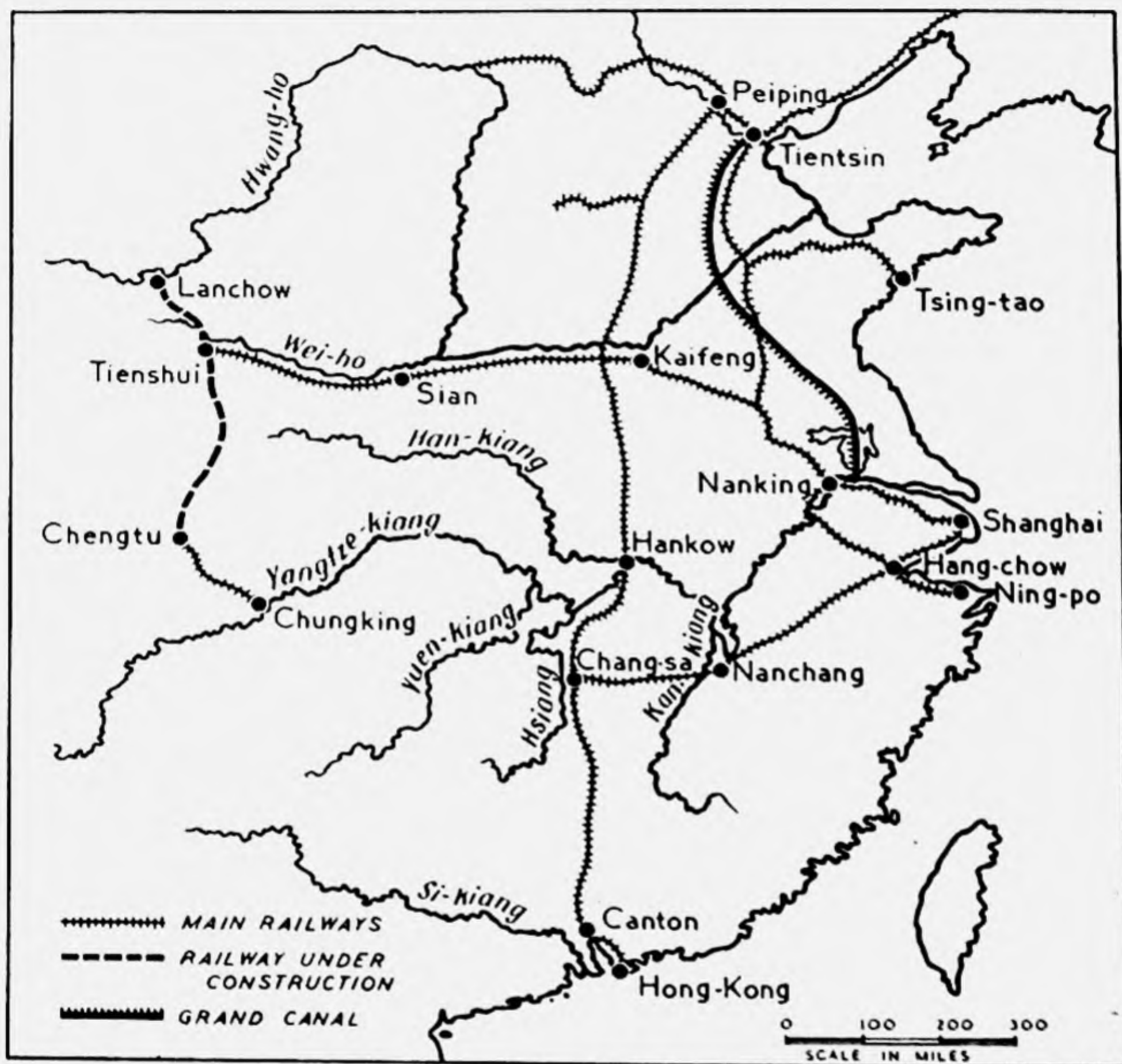


Fig. 39. CHINA—COMMUNICATIONS.

Note how the railways run at right angles to the rivers.

the summers are hot and the winters are warm, there is a rainfall of about 80 in. which is heaviest at midsummer. The north-eastern region includes all the lowlands of the Yangtse and Hwang-Ho. The summers are still hot but the winters are bitterly cold, swept by winds from Central Asia. The rainfall is moderate but again there is a pronounced summer

maximum. Lastly, the interior is even more extreme with a light summer rainfall.

Agriculture

By far the most important occupation is agriculture or, as it should be more properly called in the case of China, horticulture, *i.e.* cultivation of gardens rather than of fields, for nearly the whole of the arable land is in the form of small holdings. The title of F. H. King's well-known book about the Chinese, *Farmers of Forty Centuries*, gives the clue to the secret of the great skill which they have developed in the art of gardening—methods of cropping which have been handed down from one generation to another and improved upon in the light of experience. The Chinaman is tied very largely to his soil and to the home of his ancestors and is a child of tradition, which explains why ancestor worship plays such a great part in his religion. It also accounts for the great respect for, and loyalty to, the idea of the family, and it has made it difficult for a Central Government to foster the idea of nationality.

The alluvial lowlands of the north-east form by far the most important agricultural area. Here wheat has for some time replaced rice as the chief food crop. The northern Chinese are of a hardier type than those of the south. They entered the country later and drove the original inhabitants into the southern highlands. The bleak winters and wheaten food have no doubt had a great deal to do with the noticeable differences in stature and powers of endurance. In the south, upland or mountain rice is widely grown on terraced slopes as well as the alluvial type along the rivers. The total quantity of rice yielded is far greater than that of wheat yet there is barely enough to go round and most people have to be satisfied with a small dish of rice and a tiny piece of fish for their only meal. In the north, oats, barley, maize, peas, and beans are widely grown, and in the south there are sweet potatoes. Vegetables are cultivated everywhere.

Of the other crops, tea and cotton are the most important. China is the world's largest grower of tea, but a high proportion is consumed within the country so that it does not rank with India and Ceylon as an exporter. "China tea" is smoke-dried which gives it a different flavour from that of

India or Ceylon although these countries do prepare some tea in the Chinese fashion. The two chief tea-growing areas are the hill slopes overlooking the right bank of the Middle Yangtse and those backing the south-east coast. From the former some tea is still sent by the overland route to Central Asia and U.S.S.R. From the south-eastern area tea is exported to Britain, for it was from there that the tea-clippers used to race home from such ports as Foochow, Swatow, and Amoy.

China comes fourth in the list of cotton producers, yielding some 3 million bales, as compared with 11 million bales in U.S.A. and 5 million bales in India and U.S.S.R. Most of it is grown in the north-eastern lowland but Szechuan is also important, the crop there being under irrigation. In Szechuan, too, many opium poppies are grown.

Seri-culture, *i.e.* the production of silk cocoons, is an outstanding occupation in Central China, especially in the Lower Yangtse Basin. It is also carried on in Shantung. Other farm products are cane-sugar and indigo in the south, hemp and flax in the north.

Of the animals, pigs are by far the most important, it being estimated that there are some 63 millions. This is, of course, due to their scavenging propensities, for in China nothing can be wasted. (Pigs' bristles for brush-making now form an important export.) For a similar reason there are large numbers of chickens, some 250 millions, as well as 56 million ducks and 11 million geese. There are also dairy cattle, sheep, and goats.

Mineral Wealth

Potentially, China is one of the wealthiest mineral countries in the world and is almost certainly the one with the greatest coal reserves, which are estimated at 250 thousand million metric tons. Exploitation of these minerals is, however, in its infancy. Thus, every part is known to possess coal deposits but the only extensively worked mines are those of Shansi (anthracite) in the extreme north and Honan in the centre. The former were developed by the Japanese and the latter by the Chinese themselves, but the total annual production is less than 20 million tons. The iron deposits are estimated at over 1000 million tons, but here again the annual output is

small—about 300,000 tons. The chief output is in Shansi but there are also iron mines in Hopei (Chihli), Shantung, and very rich deposits near Hankow. The last named have given rise to the large iron and steel industry of Hanyang, developed by Chinese capital and using local coal. Tin is mined in Yunnan and most of it is exported, as is also antimony, of which China produces 60 per cent. of the world output. Another very important product (70 per cent. of world total) is tungsten, obtained from Kiangsi, Hunan, and Kwangtung. Molybdenum, bismuth, and petroleum are also being developed.

Manufactures are increasing. There are important cotton and rice mills in Shanghai and many tanneries in Kiangsi.

Population and Towns

The total population of China is estimated at 460 millions which gives an average of 140 to the square mile. As the area includes many sparsely-populated districts, it is obvious that the density is much greater than 140 in the alluvial lowlands. Thus in Anhwei (Lower Yangtse) it is over 400, in Chi Kiang over 500, in Kiang-su over 800. By far the largest city is Shanghai (population $3\frac{1}{2}$ millions). It owes its importance to the fact that it is the principal outlet for the considerable foreign trade of Central and North China. Its fine Bund, or water-front, compares favourably with that of European and American seaports and is more Western than Oriental in its appearance. This is because it was developed by foreign commercial interests (British, American, French, Japanese, etc.). It is not situated on the Yangtse, whose mouth is silted up, but on a smaller stream, an outlet from Lake Tai Hu. It is the obvious outlet for the Yangtse Basin and has important cotton and rice milling industries.

Peiping (Peking) was until 1928 the capital of China and is still important, having a population of over $1\frac{1}{2}$ millions which makes it the second largest city. It was established by the Manchus as their capital. Note that it stands at the northern end of the Chinese lowland, *i.e.* on the side from which the conquerors entered the country. In this respect it is similar to Old Delhi, Dublin, and many other capitals established by invaders, as well as to Sian on the Wei Ho, which was the

Mongol capital on the threshold of China. Tientsin, the port for Peiping, has a population of over $1\frac{1}{4}$ millions, is situated some distance up the Pai-Ho at the confluence of four streams, including the Lao-Chang-Ho from the south. It is linked by the latter with the Grand Canal so that it is the northern terminus of the great inland waterway which crosses the country to Hangchow, south-west of Shanghai. The Chinese use their rivers to a great extent for all forms of transport so that they have an abundance of east-west communications. It is for this reason that their chief railways run north-south, notably the Peiping-Hong Kong line.

When the Manchu dynasty was overthrown in 1912, and the Republic took its place, it was natural that a change of capital should be considered, partly because Peiping was too far from the centre of the country and partly because of a natural desire to break with tradition. No doubt the isolated position of Peiping had much to do with the Emperor's loss of touch with his people and so made the task of the revolutionaries easier (cf. Petrograd under the Czars). In 1928 Nanking became the new capital and it is obviously a better site, for it is on the central river, the Yangtse, and within a fairly easy reach of the northern plain and of the south-eastern coastal areas. The only densely-peopled area with which it is not in good communication is the Si-Kiang Basin. The population is just over one million. Another Chinese capital is the war-time one of Chungking, which also has a population of just over one million. When the Japanese invaders overran the lowland the Chinese Government and large numbers of peasantry withdrew to the western plateau of Szechuan to carry on resistance from there. This is an ideal stronghold for it is ringed by mountains, the only important break in which is formed by the narrow Yangtse gorge which emerges on to the lowland at Ichang, limit of navigation for river steamers from Shanghai. There is another fleet of river vessels on the Upper Yangtse, the link between Ichang and Kweichow being made by rail. Chungking, at the confluence of the Yangtse and the Kailing, is the natural centre of routes of Szechuan and terminus of the Burma Road.

The most interesting urban development in China has been that of the three towns Hankow, Han-yang, and Wuchang,

now combined into the single city of Wuchang. It is the only large-scale industrial conglomeration comparable, *e.g.*, with our own Stoke-upon-Trent, once the Five Towns. The towns are in the centre of China and of the Yangtse Basin; they are in the midst of a network of waterways, including a veritable Lake District; they are at the point where the great east-west highway (the river) is crossed by the north-south one (the railway), and they are in the centre of the coal and iron bearing region. The combined population is over three-quarters of a million.

Canton (population 900,000) plays the same part for the south as Shanghai does for the centre and Tientsin for the extreme north. It is situated at the head of a long estuary at the point where the Si-Kiang flows in from the west and the Pei-Ho from the north, so that it is the natural outlet for the trade of both basins.

Between Hong Kong and the great Bay of Hang-chow the highlands come close to the sea, but here and there rivers, fed by the heavy summer rains, have vigorously eroded their basins, giving routes into the interior. At their mouths a series of ports has developed, of which the chief examples are Swatow, Amoy, Foochow, and Wenchow, the last-named being the largest (population 650,000).

Most of the people of China live in tiny villages and hamlets and a surprisingly large number on house-boats or sampans. This latter applies particularly to the great ports, *e.g.* Canton, where many of them get their food by netting scraps thrown overboard from the shipping in the harbour.

The British Crown Colony of Hong Kong

The Colony is situated on an island and on the adjacent territory of Kowloon on the mainland. It is at the mouth of the Canton River and the island, which is mountainous, is about one-quarter of the size of the Isle of Wight and is only a quarter of a mile from the mainland. The total permanent population of the colony is just over one million, most of whom are Chinese. The port (Victoria) is chiefly important as the trading outlet for Southern China. Its harbour is usually thronged with shipping. Thus in 1940 nearly 30,000 vessels entered and cleared and of these 16,000 were junks. Like Singapore it is a great entrepôt, gathering up much of the

coastal trade of the South China Sea. In 1950 Hong Kong exported to China goods worth nearly £90 million and imported from China goods to the value of £60 million. There are shipyards, sugar refineries, rope-walks, and lard refineries. Deep sea fisheries are important. Since the political troubles which followed the Second World War there has been a great influx of refugees from the mainland. Wealthy Chinese have established new industries so that the island experienced boom conditions. Housing shortage is acute and there is much overcrowding. The present population is over 1,800,000.

Formosa

A large island intersected by the Tropic of Cancer; it was ceded to Japan by China in 1895, but has now been restored to its former owners. It is now the only territory still under the control of the Chinese Nationalists, who have been driven from the mainland by the Communists. It has an area of over 13,000 square miles and a population of over 5 millions, many of whom are Japanese colonists. Along the eastern half there is a high mountain system culminating in Mount Niitahayama (13,600 ft.). There is an extensive lowland along the west coast and it is here that the Japanese carried out most of their developments, clearing the forests for tea, sugar, and rice plantations. The Nationalists have started pineapple plantations and canneries, and are developing an export trade. The most characteristic product is natural camphor, of which it has a monopoly. Some coal is mined. A railway runs along the middle ground at the foot of the mountains and links the northern port of Kurun (which serves the capital, Taihoku) with the southern one, Takao.

CHAPTER XV

JAPAN

The Japanese Empire, once extending to the mainland and to Formosa, is now confined to the Archipelago which partly encloses the Sea of Japan. It consists of four main islands: Honshiu, Shikoku, Kyushu, and Hokkaido, of which the first-named is by far the largest as well as being the most important economically. The group is obviously part of the chain of fold ranges which fringes the East Asiatic coast but which has been mainly submerged. As a result a high proportion of the country is mountainous. The earth's crust is very unstable so that there is great frequency of earthquake shocks, most of which are mere tremors. It has been said that at any given moment an earth movement is being felt somewhere in Japan. Sometimes, of course, the shocks are really serious and great destruction and loss of life are caused, as in the Yokohama and Tokyo earthquake of 1923, when over a million people were killed. The highest mountain is the volcano Fuji-Yama, "Mother of the Snows," famous for its perfect cone. It is, perhaps, the best known mountain in the world, for its picture occurs in nearly every type of Japanese art.

Owing to the narrow character of the islands there are no long rivers, but there are very numerous short and swift ones. Biwa Lake, north-east of Osaka, is the only lake of importance. The coast line is very greatly indented, a feature being the number of bays, some of which are almost land-locked, *e.g.* Kagoshima Bay on Kyushu.

Climatically there is a definite distinction to be drawn between the western and eastern shorelands. The former have much greater extremes of temperature and a lower rainfall because of the landward facing position. They are fully exposed to the cold north-west winds of winter which blow outwards from the Siberian high pressure area. The snowfall is much heavier on this western side because the winds pick up moisture over the Sea of Japan. The eastern side is sheltered by the mountain backbone.

Many factors have combined to cause a large proportion of the people to live on the Pacific coastal lowlands. Chief amongst them are: (1) the greater percentage of fertile lowland, and (2) the more favourable climate. No doubt this preponderance of population on the seaward side had a great deal to do with the long isolation of the Japanese from the rest of the world, for the country turned its back, so to speak, upon the mainland and so intensified the natural tendency of an island people to keep aloof from its mainland neighbours.

The entrance of an American squadron into Yokohama Bay in 1853 was an event of the profoundest importance in Japanese history, for it brought the country into contact with the outside world at a time when that world had developed its manufacturing industries on modern lines. It had also begun to develop its democratic way of life, whereas the Japanese were still living in the feudal system. The Japanese are a very imitative people, so they quickly learned the industrial methods of the outer world, but they retained in very large measure their own social structure on feudal lines.

Thus a people advanced in one bound by several hundred years so far as science and technology were concerned, getting the benefit of the slow evolution of ideas achieved by their teachers but without improving *their* own standard of living to anything like the same degree. This had a serious effect upon the world's markets, for they were flooded with very cheap Japanese goods, produced by workers whose average wage was not much more than one penny a day, to the consequent disadvantage of the very nations who had taught the Japanese their methods of production. To quote an important example, the Lancashire cotton industry lost a large part of its Far Eastern market. From the Japanese point of view, however, this industrialisation took place at a very vital point in their history, for the islands were beginning to be overcrowded and many people were living at a starvation level. As in the case of Britain to-day, they needed to export manufactured goods in order to buy food.

It was this same overcrowding that had a great deal to do with the Japanese acts of aggression, for they were seeking areas in which to settle some of their surplus population, but more important factors here were the need to secure sources of supply of raw materials, for the homeland is

poor in these, and to obtain control of markets for their manufactured goods.

Farming

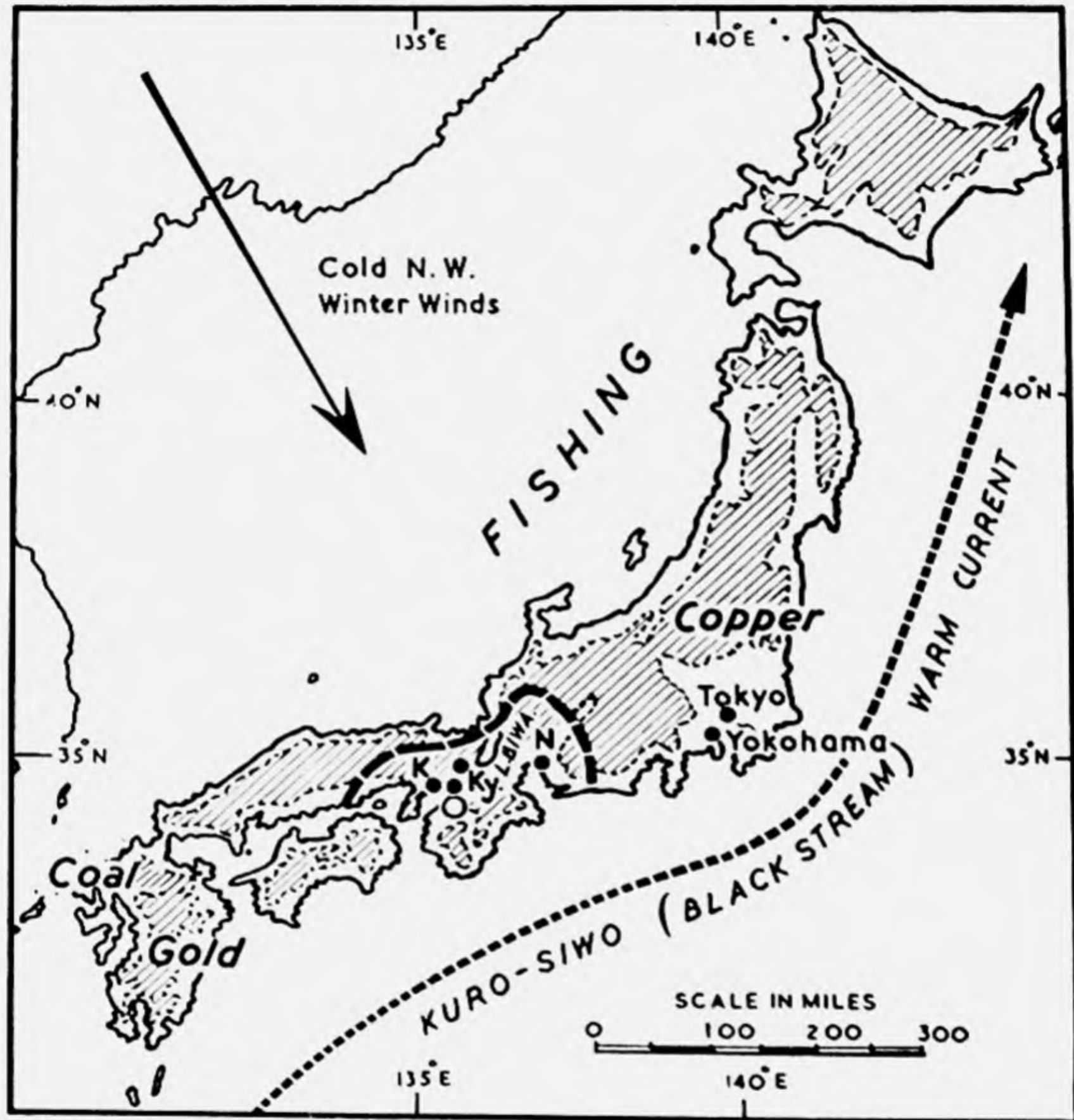
It is necessary to understand the foregoing points in order to appreciate the problems of the Japanese and to serve as a background in our study of the production and trade. By far the most important agricultural product is rice, the staple food, but compared with other countries, the average yield is low. This is because a high proportion of the crop is produced on terraced mountain sides and not on alluvial lowlands. Much of it is grown by tenant farmers tilling less than one acre. It is thought that the method of terracing hillsides was first used by the Japanese and that it was Arab seamen who spread the idea across the world, even as far as Eastern Spain (the Huertas). The total yield of rice of some 11 million tons is quite insufficient to support the population of 83 millions, so much has to be imported. Some wheat, barley, and rye are grown, but conditions are not very suitable except in the more northerly districts. Fruit growing flourishes, especially in the eastern districts, where mandarines and persimmons, pears, apples, peaches, and grapes are produced. The breeding of silkworms is an ancient and widespread industry, the northern wheat area being the most important. The total yield of raw silk is about 9,000 tons a year. Other main crops are tea, in the south, and tobacco.

Pastoral farming is limited but it could probably be greatly extended, especially on the northern island of Hokkaido. At present there are only $1\frac{3}{4}$ million head of cattle; 100,000 sheep; $1\frac{1}{4}$ million pigs. Compare these figures with those for Great Britain: $9\frac{1}{2}$ million cattle, 20 million sheep, and 2 million pigs.

Fisheries

Fishing is a very important occupation, especially off the western coast where the warm Kuro Siwo current (western branch) meets a cold current from the north, thus providing ideal fishing conditions in the Sea of Japan, *i.e.* fish food brought southwards by the cold current, and clouded skies caused by the meeting of the cool and warm airs over the respective currents. There are two characteristics of the

Japanese fisheries worthy of note. Firstly, much of the actual fishing is done by the women from the west coast of Honshiu, as traditionally it is supposed to be inferior work unsuited to men. This has resulted in the development of a very sturdy type of woman, whereas the men-folk, who stay at home to do



Land over 1500 feet.

Fig. 40. JAPAN.

the housework, are relative weaklings. It is the Japanese fishermen who train cormorants to catch fish for them. Associated with the fisheries there are the seed or cultured pearl industries. Pearls are formed by oysters to protect themselves from grit which sometimes penetrates beneath the shell. Pearls are really only thickenings of the smooth inner

lining of the oyster shell known as mother-of-pearl. The Japanese argued that if grit could be inserted the oysters would be forced to make pearls. In addition there was, up to the Second World War, a considerable fleet of Japanese pearl fishers operating off the coast of Australia.

Minerals

Japan's lack of mineral wealth is a handicap to her industrial development. There are two coal-fields, the more important one being on the southern island, Kyushu, and the other on the northern island of Hokkaido. The former yields steam coal and much of this goes to the fuelling port of Nagasaki. There is a relatively small oil-field in western Honshiu, but Japan has to import most of its requirements from U.S.A. and the Dutch East Indies—one reason for its desire to incorporate the latter in the empire. The only important metal is copper, mined on Honshiu. Other minerals are sulphur and small amounts of gold and silver.

Manufactures

Industrialisation has developed along two lines—on the one hand the modernisation of ancient existing industries preserving their essentially Japanese character, and on the other the adoption of new industries copied from the western world. Of the former we may cite the pottery, silk, and toy-making industries. Much of the pottery is still made by hand with considerable skill and artistry. But there is also a large output of mass-produced inferior imitations. The famous egg-shell type is made on Honshiu, whilst the coarser, embossed and enamelled Satsuma ware comes from Shikoku.

Japan produces about 60 per cent. of the world's raw silk and much of it is spun and woven in the country. Before the introduction of cotton cloth and Western types of clothing, silk clothed the people of all grades, much of it, however, being of very coarse material. It is also made into umbrellas, the silk being oiled to make it waterproof. Nowadays silk forms an important item of export. The Japanese are expert at toy-making as well as lacquer work.

The chief modern industries are situated in the areas Tokyo-Yokohama and Kobe-Kyoto-Osaka-Nagoya, particularly in the latter. Here are the highest mountains and the swiftest

streams, Lake Biwa forming a natural reservoir so that the development of hydro-electric power has compensated largely for the lack of coal. In these modern industries the Japanese went to great pains to copy their rivals' products, even to the length of imitating their trade marks. Because of the very cheap labour they were able to capture much of the world market, especially in the cheaper types of goods. A good deal of the labour was of the slave type, for industrialists would go into rural areas and purchase young girls from parents only too pleased to receive the cash and to relieve themselves of the responsibility of feeding their daughters. The employers would then keep them in the factories working for long hours, often eating and sleeping by their machines.

An important industry is that of cotton spinning and weaving. Lancashire felt the competition very much in the market for cotton cloth in the Far East. Indeed, Japan had ousted her from first place as exporter of cotton lengths. Apart from their lower wages the Japanese operatives worked longer and attended to 12 to 16 looms each as compared with the 6 and 8 looms of our own weavers. Offsetting this, the quality of the goods produced was much inferior, so that we retained the market in high quality cottons. The war upset the equilibrium of world trade but the Japanese have rapidly regained their markets and now (1952) export more cotton goods than Britain does.

Ship-building developed rapidly as Japan built up her naval and mercantile fleets. The latter at 5½ million tons ranked as one of the world's largest. The vessels were built cheaply, for instead of expensive cranes, women in gangs of fifty were used to move heavy girders at a wage of a halfpenny a day. Japan's softwood forests are a valuable asset and led to her becoming the chief world exporter of rayon. The war greatly upset this and other industries, but recovery has been rapid. In 1950 Japan produced 70 thousand tons as compared with U.S. production of 572 thousand and British 168 thousand. Other large-scale industries are the manufacture of rice paper, used still as the framework of houses in poorer districts, pencils, matches, and cycles. The Japanese use the last-named widely, and there is a large export market, *e.g.* in Africa.

Since the end of the Second World War America has assumed a large measure of control over Japan, resulting in the democratisation of the country as shown by the changed status of the Emperor, now a constitutional monarch rather than a deity. The Americans have encouraged the re-establishment of Japanese industries and of the export trade because they do not wish Japan to become a charge similar to that of Western Germany. One other result of American occupation has been the improvement of the lot of the workers by higher wages and shorter hours. This will affect world trade because it will bring the cost of Japanese manufactured goods nearer to that of the Western nations. Not only will it mean the elimination of unfair competition but it will also increase the purchasing power of the Japanese, thus enabling Western goods to be sold in the Japanese market. Indeed, the nearer the standard of living of all Asiatics is brought to that of the peoples of Europe and U.S.A., the more the latter will benefit by expanding markets.

In 1950 Japan exported cotton goods to the value of £85 million, more than half as much as the United Kingdom, and exports of silk, rayon, machinery, iron and steel goods, and non-ferrous metals, were each about £30 million. The United States is Japan's best customer taking nearly 25 per cent. of her exports; Pakistan, Hong Kong, Indonesia, Siam, and Formosa take about 6 per cent. each.

Tokyo (4,200,000), the capital, is situated on the most important island in a central position on its eastern coast—the more important one. It is on the largest lowland in the country and has a good harbour—an essential for a capital of an insular country where much of its passenger traffic must be by sea. Its out-port, Yokohama, is on the southern shore of the bay in a sheltered position and having deep enough water to take very large vessels.

CHAPTER XVI

KOREA AND MANCHURIA

Korea

Korea was annexed by Japan in 1910 but was taken from her in 1945 after the Second World War. It was intended that Korea should become an independent state, but differences of opinion between the Western Powers on the one hand and the U.S.S.R. on the other led to its partition into North Korea and South Korea with the 38° N. parallel of latitude as a boundary. This was particularly unfortunate as the Koreans are essentially one people, and since the relief of the country runs from north to south the frontier is purely artificial and in no way a barrier.

Korea is now being devastated by warfare between North Korea, supported by Communist China, with U.S.S.R. in the background, and South Korea, supported by the United Nations. Hence details of production given below must be taken as referring to pre-war times. Whatever may be the outcome of the present struggle Korea will take some years to recover.

Korea has an area of 5,000 square miles and may be subdivided into two parts: (1) the mountainous north-east, *i.e.* the area north of lat. 40° where there are quite extensive mountain regions of over 6,000 ft. above sea-level and where there are very high cliffs along almost the whole of the extent of the coast line; (2) the peninsula which divides the Yellow Sea from the Sea of Japan and which is by far the more important region from the human and economic points of view. This peninsula has a "backbone" of mountains which keep well to the eastern side in the north, but in the extreme south they cross the centre. They give the impression that Korea turns its back on Japan, and, indeed, apart from the extreme south-east corner, nearly everything of importance is centred on the western coastal districts.

The climate is of the St. Lawrence type, but with the modification that it has a very heavy rainfall extending from the middle of July to the end of August as compared with

the usually fairly evenly distributed rainfall of the type. There is much snow in winter.

The western coastal area is an undulating country of rocky hills (spurs of the eastern ranges) and fertile valleys. Agriculture is by far the most important industry for there are 11 million acres under cultivation and 80 per cent. of the population live in the country. The system of land tenure is interesting. Private landowners occupy the lowlands but the mountain slopes are let to tenant farmers by the Government. This is because the former have been tilled for generations, but the latter, with the recent increase of population, have now been terraced and irrigated and this necessitates some sort of controlling authority.

The chief crop is rice, which occupies about a quarter of the cultivated area. There is enough grown for the needs of the inhabitants and a considerable surplus for export to Japan. On the average the crop is about 100 million bushels. The straw is much used for thatching and the making of sacks, rope, and shoes. Other crops are barley, millet, soya beans, rye, and maize. Some tobacco and cotton are grown and there are extensive apple orchards. Silkworms are reared and yield about 500 million pounds of silk annually.

The chief animals reared are cattle (about $1\frac{3}{4}$ millions) and pigs ($1\frac{1}{2}$ millions), the former being of a good type.

Along the coasts fishing is important, including whaling. Fur trading is important in the northern forested areas which also yield valuable timber (maple, pine, beech, and oak). The mountains are known to be rich in minerals, but these are not yet fully exploited owing to transport difficulties. Some gold is mined, but coal and iron are by far the most important. Other minerals are tungsten, molybdenum, and mica.

The Japanese developed manufactures, particularly textiles (cotton, silk, and rayon). More distinctive is the synthetic nitrogen plant for the manufacture of fertiliser and other chemicals, at Kirin on the east coast.

The capital and chief commercial centre is Seoul with its port Chemulpo. It is situated in a central position on the western lowland and is linked by railway with Mukden (Manchuria) to the north-west; Fusan, the chief ferry port to Japan, in the south-east; Moppo in the south-west, and Seishin in the extreme north-east.

In the north-west, on the Yalu River, there are great hydro-electric plants which supply power to Manchuria. They were developed during the period when Japan controlled both these countries, so that there was no question of international boundaries. Undoubtedly one of the reasons for the fighting in 1950 was the fear that with complete United Nations success in Korea, Manchuria might be deprived of its chief source of power thus crippling her growing industries.

Manchuria

"The land of the Manchus" was the home of the horsemen who conquered China in the 17th century and whose descendants ruled that country until the Revolution. It is a large country of some half a million square miles and was, until the establishment of the puppet empire by the Japanese, receiving large numbers of immigrants from overcrowded China. It now has a population of about 45 millions, of whom 90 per cent. are Chinese.

Manchuria may be divided into four main regions: (1) the Western Mountains, the Khingan; (2) the Central Lowland drained chiefly by the Sungari River to the north-east, but with a smaller basin in the south-west drained by the Liao-Ho into the Gulf of Liao-Tung; (3) the Eastern Ranges formed by the Little Khingan Mountains and the highlands bordering Korea. These are separated from each other by a wide gap cut by the Sungari on its way to join the Amur which forms, with its tributary the Ussuri, a large part of the Manchurian boundary. The southern half of the Amur Basin forms the fourth region, the North-Eastern Lowland.

Climatically the lowlands are grouped in the St. Lawrence type with bitterly cold winters and many blizzards, but having hot summer days with much sunshine and frequent convectional showers. The natural vegetation is a temperate grass or steppe on the lowlands with a great deal of forest on the wetter mountain ranges, especially those along the south-eastern boundary.

Agriculture is the outstanding occupation and very good crops are obtained, for the soil in the lowlands is extremely fertile. The chief crops are oil seeds ($4\frac{1}{2}$ million acres), soya beans (4 million acres), millet (4 million acres), and maize (3 million acres). Wheat growing has increased. The most

characteristic product is the soya bean, for this was first cultivated in Manchuria. It is an extremely useful product because it can not only be ground into flour, but also yields valuable chemicals for a variety of industries, as well as oil. Manchuria ranks third to China and U.S.A. in production (145 million bushels) and is the greatest exporter.

Most of the pastoral industry is based upon the high steppe-lands of the west where it is carried on by Mongol tribesmen. Large numbers of animals are reared, once again pigs being the most numerous (over 5 millions). There are also $1\frac{3}{4}$ million cattle and about 2 million sheep as well as over 1 million goats.

Like Korea, Manchuria has a great reserve of mineral wealth. The chief worked mineral is coal, with an annual output of some 12 million tons. There is a fair amount of iron mining, and shale-oil, magnesite, and gold are other products.

The Japanese, in the years before and during the Second World War, did much to develop the mineral wealth of their puppet State, Manchukuo, as they called Manchuria. Thus they obtained some 25 million tons of coal, notably from the open-cast mines at Fushun. Other coal mines are at Penhsihu on the Mukden-Antung Railway, where iron is also mined. There are huge deposits of the latter in Southern Manchuria, although it is low-grade ore apart from that mined in the extreme east. Shale-oil is obtained from shale deposits which cover the Fushun coal measures. There are known to be enormous reserves of aluminium, molybdenum, and uranium, in the southern area.

The Japanese also organised the power resources of the country, obtaining it from hydro-electricity, oil, and coal. The most ambitious scheme was that of the Hsao Fung Maon dam on the Sungari River just above Kirin which impounded 14 billion cubic feet of water. It had not been completed by V.J. Day.

Industries developed by Japan were: textiles, chemicals, and cement, at Mukden; steel, aluminium, cement, railway rolling stock, at Fushun; steel, at Anshan; synthetic rubber, cement, at Kirin.

When the Russians entered the country there was much confusion, and this has increased because of the civil strife

between the Chinese Nationalists and Communists. Many mines and factories have closed down largely because the Russians carried off machinery as reparations.

Manchuria is well served by railways, the two main hubs being Mukden in the southern basin and Harbin in the northern. These two cities act as the natural market and strategic centres of their respective lowlands. Mukden is situated on the middle plain between the Liao-Ho and the eastern ranges, for the river is liable to flood and it flows through swampy country. The city is the largest in Manchuria, having an estimated population of 1,200,000.

Harbin, the northern centre, has over half a million inhabitants. It is a bridge-town on the Sungari and is on the direct route of the trans-Siberian railway to Vladivostok.

Other towns are Hsinking (selected as capital of Manchukuo by the Japanese) which commands the easiest route between the two basins. Its population is now estimated at 800,000. Antung, on a small plain in the extreme south-east; Kirin, at the outlet of the Upper Sungari from the mountains. It is possible that the Kwantung Peninsula with Dairen and Port Arthur will be restored to Manchuria at the peace settlement.

In August 1945, U.S.S.R. recognised China's right to full sovereignty in Manchuria, but there is little doubt that Russian influence is still very strong. The country is now recovering from civil war but there is always the fear that the Korean War may spread. The Chinese Communists have begun to bring production back to normal, especially on the land, where the former tenant farmers have been deprived of their holdings and collective farming has been started on the Soviet pattern.

CHAPTER XVII

MONGOLIA AND TIBET

Mongolia consists of a vast plateau of some 3000-4000 ft. above sea-level extending for 2000 miles from west to east from the Tarbagatai Mountains to the Khingan Range. Its north to south extent from the Siberian border to the Nan-Shan Range is 1200 miles and the total area is 1,875,000 square miles. This is divided politically between the Republic of Outer Mongolia, which is under Russian influence, and Inner Mongolia, which is still part of China. In its north-western corner the plateau is intersected by the Altai Mountains.

Climatically the region is arid, the summers are hot and the winters are bitterly cold, especially when severe gales blow from the Arctic causing the temperature to fall to -40° or -50° F. As a result of the low rainfall much of the eastern part of the area is covered by the Gobi or Shamo Desert, most of which is a rock rather than a sand desert, the top surface being a fine gravel. The most common vegetation is sage bush which grows to a height of about 8 in. Here and there are clumps of coarse grass and thorn bushes, the latter forming food for camels. Along the northern mountain slopes there are birch forests and at their foot there is good grass, especially where perennial streams leave the hills. The banks of these are lined with cottonwood trees. Over the whole of this area there are less than one million people, and of these there are about 150,000 Buddhist lamas (monks) or nearly one-third of the total male population. They live in lamaseries which are usually situated in sheltered hollows, and they expect to be maintained by the remainder of the population, in a region where life is not easy. Most of the Mongols are nomadic, rearing sheep, goats, camels, and horses. Their ancestors, the Huns and the Tartars, broke out of the country in the 5th and 13th centuries, wreaking havoc wherever they went, especially the Tartars who destroyed famous cities like Balkh, Merv, and Baghdad, and ruined the irrigation system of Mesopotamia to such an extent that the country has never recovered. The present day Mongols lead a very similar

life to that of their forefathers. They are short and sturdy, beardless, and with small eyes. They are bow-legged, as they are expected to learn to ride almost before they can walk. They rear sheep for their wool and goats for meat, cheese, and butter. They sell the goat hides. Camels, ponies, and ox-carts are used for transport in a land where, as yet, there are but very few railways and little motor transport. The camels are the Asiatic species—the two-humped dromedary or Bactrian camel. There are nearly 16 million sheep, 3 million horses, 3 million cattle, and 750,000 camels in Mongolia.

The Mongols live in black felt tents called *yurts*, made of camel hair or wool. They are semicircular, the felt being stretched over a wicker frame, the whole structure taking less than 20 minutes to erect or take down, an obvious advantage to a nomadic people. They also build wicker barns for the animals. For fuel they use dried dung.

The only important town in Outer Mongolia is *Urga* (Ulan Bator) with about 100,000 inhabitants. It is now linked, in summer only, with Kalgan, the chief town of Inner Mongolia, by a motor service which crosses the Gobi Desert, taking five days. There are railways to Nalaikha and Altan Bulak. Engineering works and a meat-packing factory have been established recently.

Tibet

Politically Tibet is included within China, but in point of fact power is in the hands of the lamas or Buddhist priests. Very few Europeans have penetrated into the country and little is known about such things as the exact population, which is now thought to be about 750,000. The country extends from the Kun-Lun Mountains in the north to the Himalayas to the south and for the most part is an inhospitable plateau of over 14,000 ft. above sea-level. Much of it is tundra with patches of ice-desert. There are numerous large lakes, *e.g.* Tengri-Nor. The only important rivers are the San-Po, or Upper Brahmaputra, and the Upper Indus, both of which flow through deep and relatively narrow valleys. It is in these valleys that most of the people live and it is only there that cultivation can be carried on. Barley and vegetables are grown and, in very sheltered parts, peaches and other fruits. Many sheep and yaks are reared, both for

transport and for their wool. Shepherds take their flocks high up into the mountains in summer in search of pasture, an example of transhumance. There are quite important woollen industries, as may be imagined in a country of such severe weather conditions. Gold, borax, and salt deposits are worked.

Most of the transport of goods is done by such animals as sheep, yaks, and crosses between yaks and cattle. The chief trade is with China which is more accessible than either U.S.S.R. or India. The routes to the latter country are across passes up to 18,000 ft. above sea-level, and traffic ceases during periods of heavy snowfall.

About 20 per cent. of the total population are lamas and the country is ruled by the Dalai Lama who lives near the capital, Lhasa. This is a town of some 50,000 inhabitants situated in a sheltered southward facing tributary of the San-Po. The only other town of importance is Leh.

CHAPTER XVIII

THE UNION OF SOVIET SOCIALIST REPUBLICS

As stated in Chapter XX of Book III in this series, the U.S.S.R. is now one vast area extending from the boundaries of Poland, Hungary, and Romania in the west, to the Pacific in the east. The Ural Mountains form no real barrier, so that this expansion of Russian political power from Europe into Asia was but natural. In many ways, the Russian mentality is Asiatic rather than European in character, although the initiative and progressive outlook have come from the European part, having been absorbed from western neighbours.

Physically, U.S.S.R. may be divided into (1) the Western Plain, which extends from the European section to the River Yenisei; (2) North-Eastern Siberia, a plateau of ancient rock extending to the Behring Sea; (3) the South-Western Plain, extending roughly south of lat. 50° and being mainly the drainage area of the Aral Sea; (4) the South-Eastern Highland Fringe, which includes the Pamir region.

Climatic Regions

Apart from the eastern coastal belt the whole of this area slopes northwards, so that the two main climatic controls are exposure to the Arctic and the screening effect of the Central Asiatic Highland Belt, with the result that over the whole of the area the winters are bitterly cold and the precipitation is moderate to light. Along the Pacific coast there is a cold current (the Kamchatka), so that winter conditions are no better. Indeed, in a way they are worse because, although the temperatures are not so low as in some parts of the interior, the air is moist.

Naturally, over such a vast area conditions vary greatly and it will be necessary to divide it into several climatic sub-divisions. Extending along the northern coast as far inland as the 50° F. July isotherm (the northern limit of tree-growth) there is the *Tundra*. Note how this region penetrates farthest to the south to round the head of the great estuary of the Ob which has a similar effect, though on a smaller scale, to that of Hudson Bay in North America. Throughout the tundra the winters are very cold and the cold becomes more

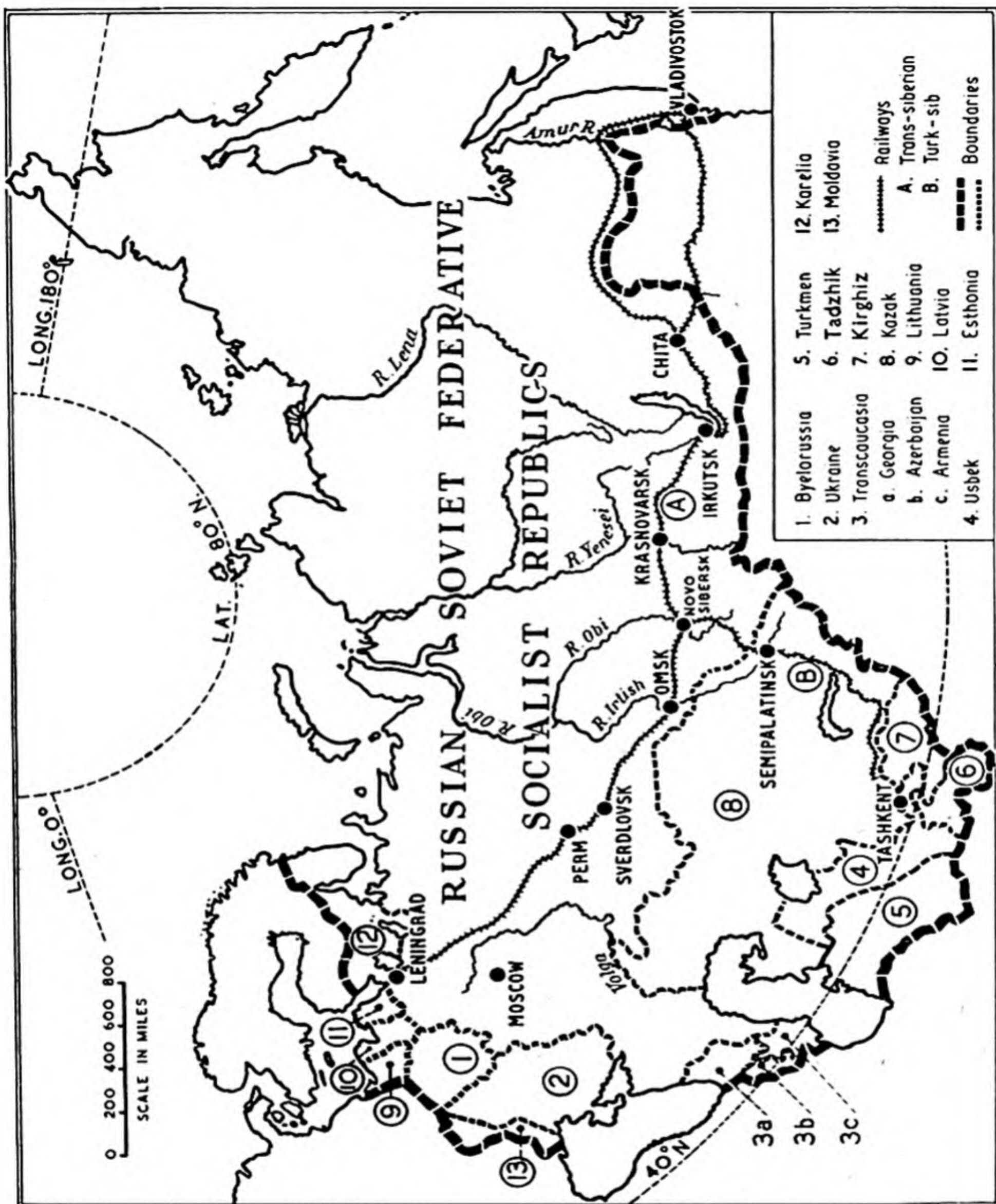


Fig. 41. U.S.S.R. POLITICAL DIVISIONS AND THE TRANS-SIBERIAN RAILWAY.

intense progressively eastwards, until near the mouth of the Lena River the January temperature averages -40° F. The rainfall is moderate and also decreases eastwards. It is everywhere less than 10 in. and most of this falls in summer in the form of drizzle. Owing to the long hours of sunshine in the Arctic, summer temperatures in sheltered valleys often rise to over 70° F. In winter there is a light snowfall which

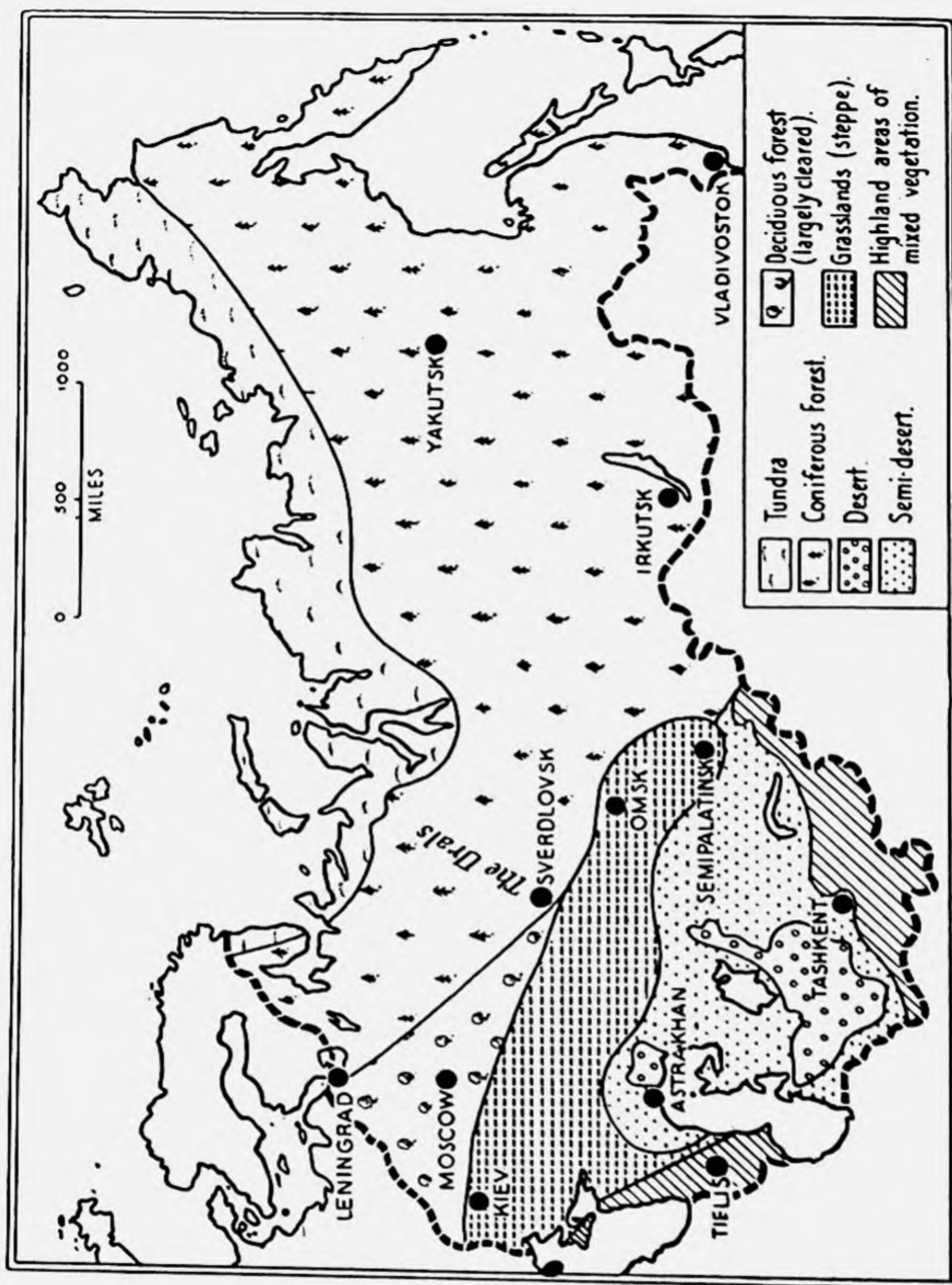


Fig. 42. NATURAL VEGETATION OF THE U.S.S.R.

accumulates during the cold season and so by the end of winter appears to be more considerable than it really is.

South of the 50° F. July isotherm and widening considerably towards the east there is a belt of *coniferous forest*. Over the whole of this belt the summer temperatures are in the 60° - 70° range, but the midwinter temperatures vary greatly, there being a steady decrease from west to east (Tobolsk, -2° ;

Yakutsk, -46° ; Verkhoyansk, -60°). There is a similar decrease in average annual rainfall towards the east (Tobolsk, 18 in.; Yakutsk, 14 in.). There is a pronounced summer maximum rainfall which also becomes more marked as one travels eastward (Tobolsk, 72 per cent.; Yakutsk, 79 per cent.).

The Far Eastern Belt is, of course, somewhat modified by Pacific influences, but these are not so strong as might be supposed because (a) in winter the winds are off-shore, and (b) the cold Kamchatka current neutralises the usual warming effect of the ocean. In summer winds are on-shore and so the maximum rainfall occurs at that season (Vladivostok, 80 per cent.).

The Steppe Land of the south-west has uniformly high midsummer average temperatures, *i.e.* about 70° F., and the winters are cold. Here again there is a decrease towards the east. Most of the rain falls in summer in the form of convectional summer storms.

To the south of the steppes there is the semi-desert *Turan* region where there are very high summer temperatures (*i.e.* 80° F.) and the winters are still cold but above zero. The rainfall is a very small one (2 in.-5 in.).

Under the Tsars there had been very little development in the Asiatic territories, for they had been regarded mainly as a colonial possession and a convenient dumping ground for political prisoners. Although the latter are still sent there to work in the forests and mines, much progress has been made under the Soviets in the encouragement of agriculture, forestry, mining, and manufactures. A great deal of the work has been undertaken by the inhabitants of the various localities, so that a tremendous social revolution has taken place. Thus, the erstwhile reindeer-rearing Samoyeds and Yakuts of the tundra have started to rear cattle and to work in such new ports as Igarka on the Yenisei, and the once nomadic Uzbeks now cultivate great areas of cotton and other crops and work in factories.

Politically, all but the south-western areas come under the great Russian Soviet Federal Socialist Republic, which is subdivided into provinces and regions for the purposes of local government. In the south-west there is a group of smaller autonomous Soviet Republics based upon local racial groups.

They are in the Kazakh S.S.R., the Turkmen S.S.R., the Kirghiz S.S.R., the Tadzhik S.S.R., and the Uzbek S.S.R.

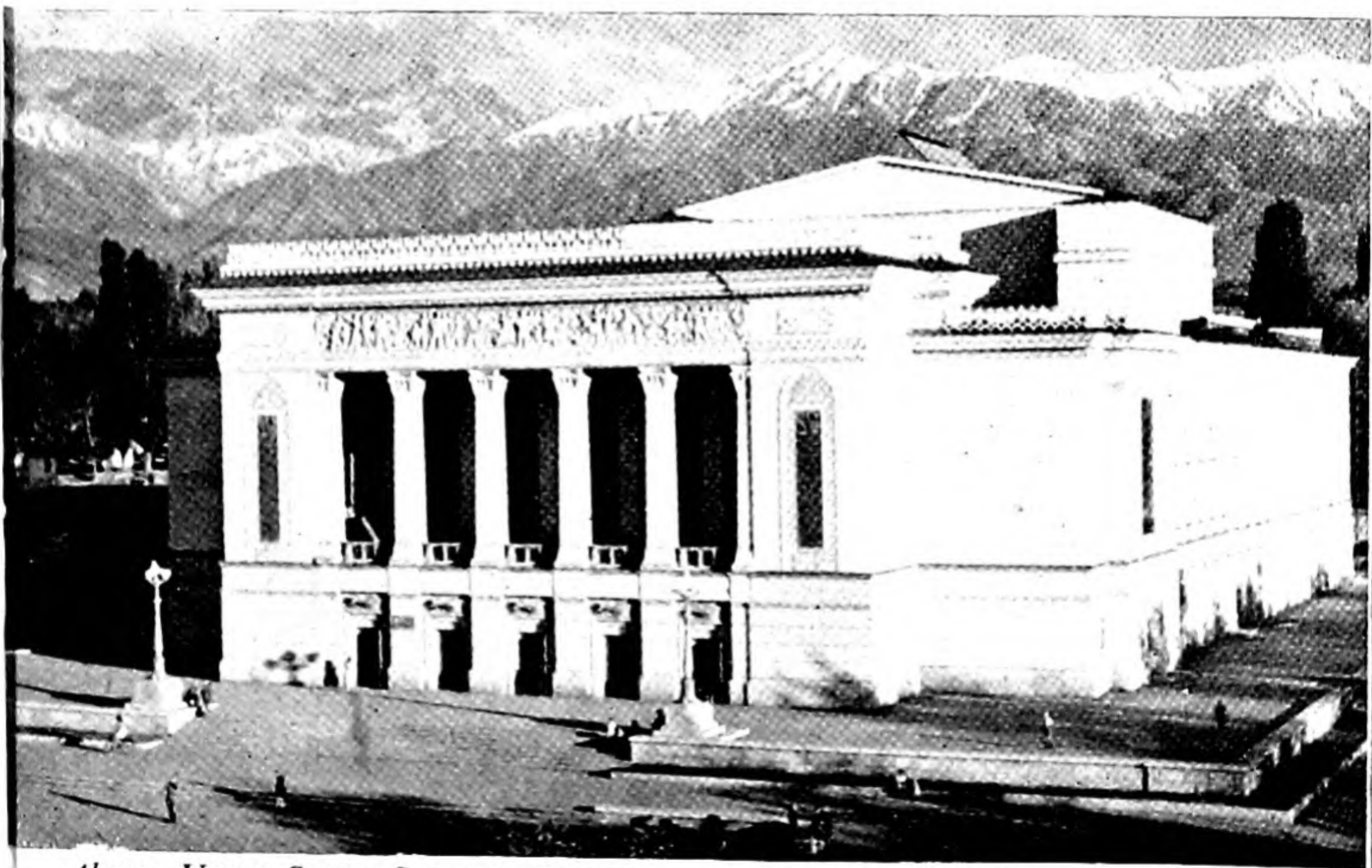
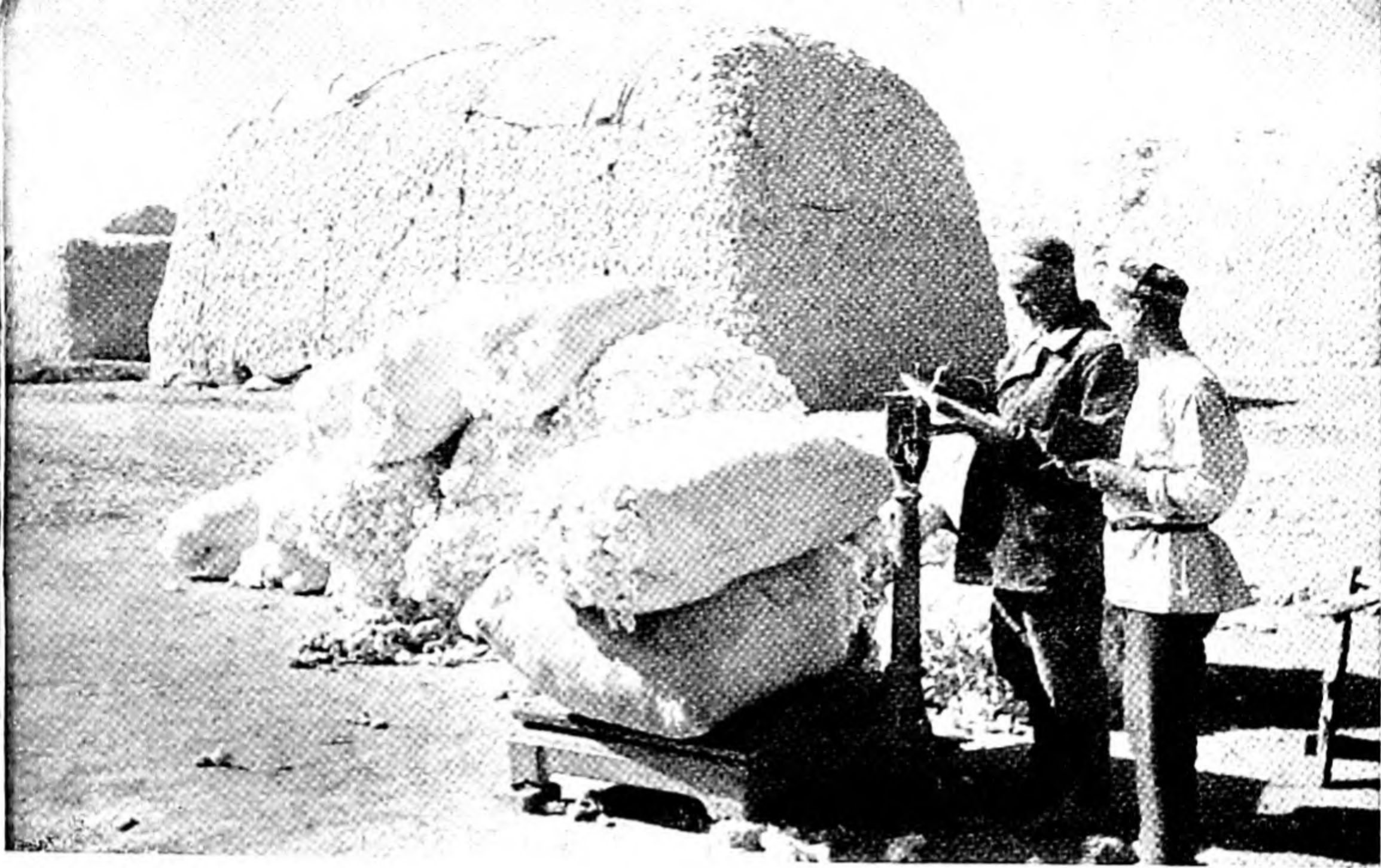
The R.S.F.S.R. (Asiatic Territories)

This vast territory extends from the Ural Mountains to the Pacific Ocean and may be sub-divided into the following economic areas:—

(1) The Tundra, (2) the Coniferous Forests, (3) a relatively small portion of the steppes in the south-west, (4) the Central Asiatic Highland Belt, and (5) the Far Eastern Region.

1. THE TUNDRA. Some attention has been paid by Soviet agricultural scientists to this narrow belt bordering the Arctic. Climatically it suffers from very cold winters, the intensity of the cold increasing eastwards, but the summers are quite warm and there is almost continuous daylight. The soil is poor in humus and near the rivers it remains frozen. However, on the higher ground, in pockets where soil has collected since the original was removed by the glaciers during the Ice Age, experimental crops of perennial wheat have been grown and, where new ports have been founded, *e.g.* Igarka, the cultivation of vegetables has proved successful. Some of the nomadic tribes have been encouraged to grow grass to feed cattle, but on the whole most of them, especially the Chukches of the east, still pursue their accustomed occupations, rearing reindeer, fishing, trapping, and collecting berries during the summer.

Along the Arctic shore the ice closes in during the winter but for a while in summer a narrow lane is cleared. Soviet steamers then make use of this to reach various ports which have sprung up in or near the tundra to handle the produce of the interior, especially timber from the coniferous forests. Chief of these is Igarka which is over 400 miles up the Yenisei River at a point where it is five miles wide. The building of the town was commenced in 1928 and serious difficulties were surmounted by novel methods. Thus to provide a water supply heated pipes had to be laid alongside the mains to prevent freezing. The construction of a safe harbour in such a deep river also presented problems, but the engineers waited until the river was at its lowest in midwinter when, at a temperature of -40°F. , the surface ice was mined and after the



Above: UZBEK SOVIET SOCIALIST REPUBLIC. WEIGHING BALES OF COTTON. (Society for Cultural Relations with the U.S.S.R.)

Below: KAZAKH SOVIET SOCIALIST REPUBLIC. THE THEATRE OF OPERA AND BALLET AT ALMA-ATA. (Society for Cultural Relations with the U.S.S.R.)



Above U.S.S.R. LUMBER INDUSTRY. A RAFT OF 100,000 CUBIC FEET OF TIMBER BEING TOWED DOWN THE RIVER YENISEI TO THE PORT OF IGARKA. (*Society for Cultural Relations with the U.S.S.R.*)

Below U.S.S.R. NOVOSIBIRSK TECHNICAL COLLEGE, STUDENTS AT PRACTICAL WORK IN THE FUR-DRESSING ROOM. (*Society for Cultural Relations with the U.S.S.R.*)

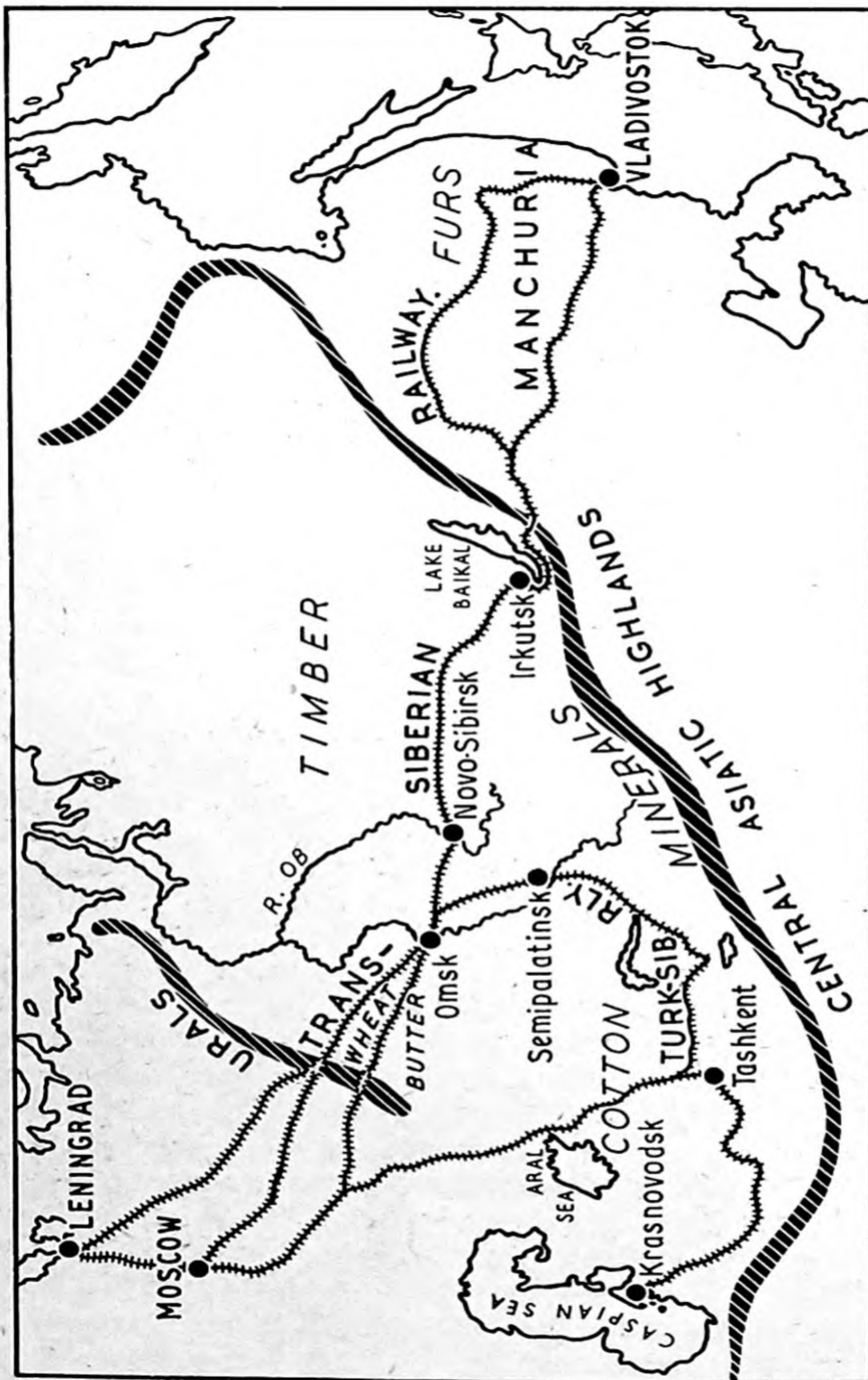


Fig. 43. TRANS-SIBERIAN AND "TURK-SIB" RAILWAYS.

bed had been pierced by steam needles, piles were driven into it to a depth of 25 ft. Even then the tremendous variation in the depth of the river makes things difficult. The quay is covered by about 45 ft. of water in June, but is so strongly built that it is ready for use when it reappears in July. Food supplies provided another difficulty, but vegetables are grown in hothouses which have blinds drawn during part of the Arctic summer "day." Another method is to partly germinate seeds before planting, which gives them sufficient start. Incidentally, on isolated Arctic islands where mainly only meteorologists are stationed, underground hothouses are used. One of the chief reasons for the slowness of the exploitation of the Siberian forests has been the poor communications, and the great rivers provide a means of getting over the difficulty. As it is, in autumn the ships sometimes get caught by the ice and the crews have to be rescued by Soviet planes.

2. THE CONIFEROUS FORESTS. These cover a vast area extending from the Pacific Ocean to the Urals. They may be divided into two main regions: the lands west of the Yenisei corresponding with the belt of more recent rocks, and those to the eastwards, coinciding with the ancient plateau. The former region consists of a high proportion of marshland, and flooding is frequent. In the spring the lower courses of the Ob and its tributaries remain frozen, whereas there is a thaw in the southern parts of the basin. Again, in the autumn, the frost comes to the lower portion first, so that at both seasons flooding results.

In the forests there are enormous reserves of timber suitable for building, for paper, and for rayon, but poor communications have hitherto prevented systematic exploitation. It was to reach this timber that shipping routes have been opened along the Arctic and that such ports as Igarka have been founded. For a long time much of the labour has been provided by political and criminal prisoners, lately reinforced by large numbers of prisoners of war. Much of the timber in the western lowland is valueless as it has rotted in the marshes.

The area east of the Yenisei, which is divided between the East Siberian region and the Yakutsk Autonomous Soviet Socialist Republic, shows great promise as a mineral bearing

area. Geologically it is very similar to the Canadian Shield. Already there are important goldfields in the Lena Basin, which are responsible for the greater part of the Russian output, now second only to that of the Union of South Africa. The air service between Yakutsk and Irkutsk has greatly facilitated the development of this goldfield but the primary need is for railways. A line from the Lena River at Nat-Kut to the Angara River at Zayarsk is shortly to be opened and will link the Lena Basin with the Trans-Siberian Railway. Motor roads link outlying districts with the existing lines, e.g. the gold mining centre at Aldan. Other minerals are silver, lead, salt, and coal. There are vast reserves of the last named on the Lower Yenisei (Tunguz field) and Lower Lena (Yakut field). It is known, too, that there are great areas of copper-bearing rock. The only industries are saw-milling, paper, and cellulose works at Igarka and Krasnoyarsk.

In the forests, especially of Yakutsk, hunting and trapping of fur-bearing animals are important, many valuable pelts being exported. Agriculture is not well developed in the eastern regions but in Western Siberia there has been a great deal of marsh draining. Rich meadow grasses feed large herds of dairy cattle. Flax, hemp, and wheat are cultivated. In forest clearings the poor humus and lime deficient podzol soils have been limed and treated with fertilisers, so that they now yield fair crops of rye, oats, and vegetables for nearby towns.

The towns in the forest are either older settlements along the Trans-Siberian Railway like Tomsk (156,000) or Krasnoyarsk (190,000), bridge town on the Upper Yenisei, or they are timbering centres like Yeniseisk, river port near the confluence of the Yenisei and the Upper Tunguska. Regional capitals are Novo Sibirsk (420,000) and Yakutsk.

3. THE SOUTH-WESTERN STEPPES. This is a relatively narrow belt extending from the Southern Urals to the neighbourhood of Barnaul. It is not the open grassland usually associated with the term "steppe" but it is very similar to the "grove belt" which divides the Canadian prairie from the coniferous forests. It is a park land country with large areas of grass interspersed with trees. Here the fertile soils yield rich crops of wheat, barley, millet, and sugar-beet. It

is the second most important wheat-growing region in the whole of the Soviets, yielding about 13 per cent. of the crop, and is really a continuation of the Ukrainian black earth or "chernozem" soil. It is a mixture of humus (decayed vegetable matter), loess (wind borne from the semi-deserts of Central Asia), and alluvium. The blackness has been caused by the annual decay of grass. In West Siberia the farming is largely carried out on Sovkhozes, or large State-run farms, as distinct from the collective farms of the Ukraine, where the workers manage their own affairs. The reason for

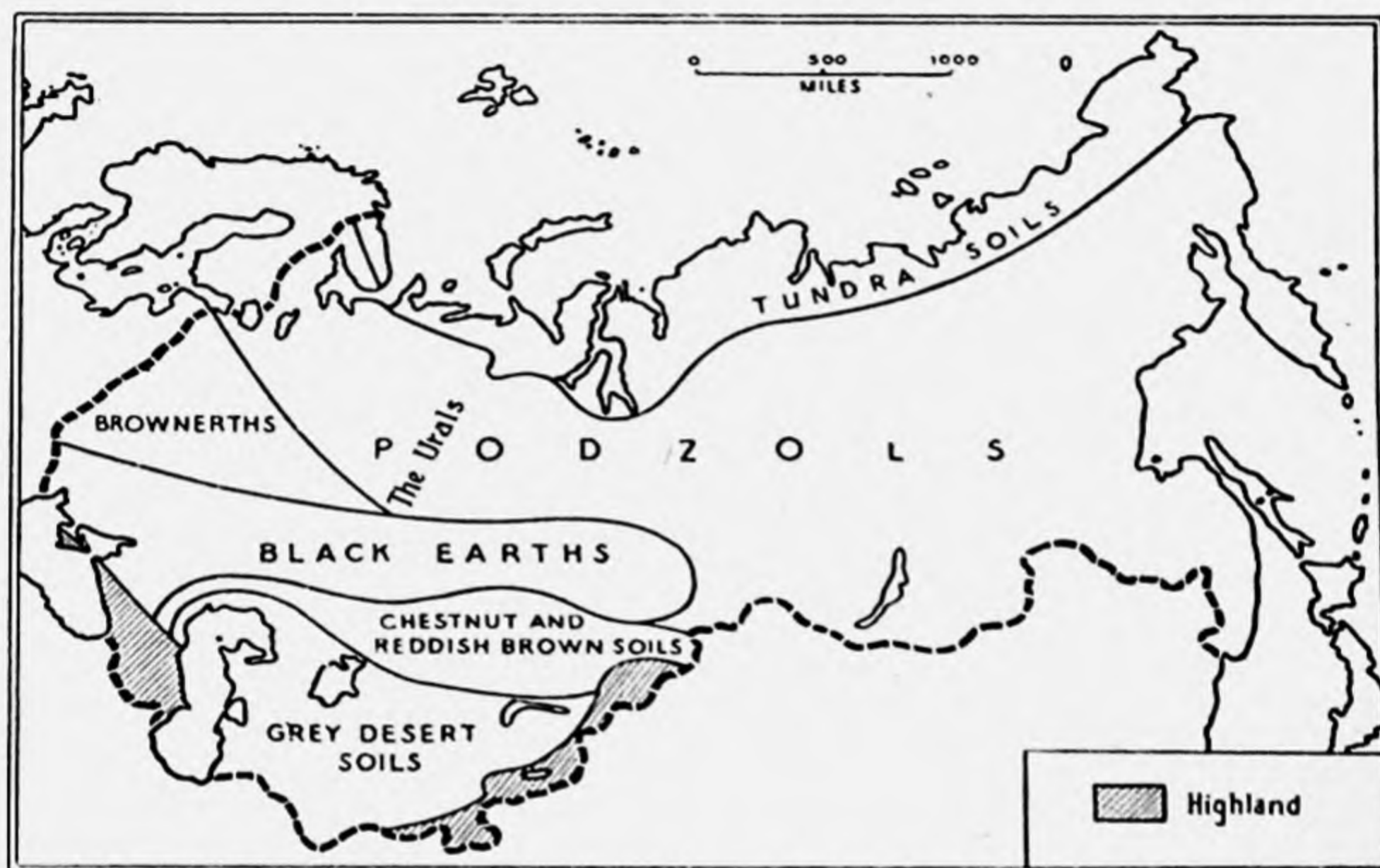


Fig. 44. THE MAJOR SOIL ZONES OF THE U.S.S.R.

the difference is that whereas in the Ukraine cultivation of the soil is a well-established industry, in Siberia many of the people are unaccustomed to it, having until recently been nomadic pastoralists, so that they need the supervision of experts. An exception to this is a belt along the track of the Trans-Siberian Railway which, soon after its construction, brought colonists from European Russia. It is on this line that the chief towns are situated. They include Omsk (population 300,000) at the crossing of the Irtysh, chief tributary of the Ob. Barnaul (population 150,000), bridge town on the Ob, is an important junction on the "Turk-Sib" Railway.

4. THE CENTRAL ASIATIC HIGHLANDS extend from the Kazakh boundary eastwards and are the northern edge of the great mass of highlands which form the heartland of Asia; including the Altai and Sayan Mountains as well as Lake Baikal. Over much of the area life remains primitive and pastoral, but even the isolated Buriat Mongolians who live to the south-east of Lake Baikal have been taught the science of cattle breeding. On the extreme north-west there has developed one of the most important industrial areas of the Soviet Union, the Kuzbas, based on the Kuznetsk coal-field between the Upper Ob and Yenisei. Its development was hastened by the German occupation of the Donbas, and it is now the second largest coal-producing area. Much of the coal is sent to the great metallurgical industries of the Southern Urals, 1400 miles away, but an increasing tonnage is being retained for the metal industries of Stalinsk (population 200,000) developed from the iron mines at Telbes. There is also an important aluminium industry developed during the Second World War. Coal-mining towns are Prokopveisk (120,000) and Anjero Sudjeansk (100,000). Nitrates, nitric acid, and other valuable chemicals are obtained from the coke-ovens. Not far to the east, in the winding gorge of the Upper Yenisei, is the smaller Minussinsk coal-field, useful to the Trans-Siberian Railway which in its early days relied for fuel on timber felled from the Siberian forests and stacked in huge piles along the line. After making its way along the northern edge of the highlands the line penetrates them by way of the Upper Tunguska (Angara) Valley where the outflow from Lake Baikal reaches the Siberian plain. So it arrives at Irkutsk where there are silk industries. The railway then makes its way round the south-western end of the lake by a narrow platform between it and the eastern edge of the Sayan Mountains. In winter, when Lake Baikal is frozen and the platform is impassable, ice-breaker train-ferries carry the trains across the lake.

5. THE FAR EASTERN REGION. With the exception of the area to the extreme south-east, the hinterland of the Pacific coast is about the wildest and least developed part of the Union. There is a succession of high mountain ranges backing a very inhospitable coast where gales and fogs are frequent

and the winters are bitterly cold, partly because of the north-west winds which blow from the land and partly because of the cold Kamchatka currents. The Sea of Okhotsk is full of icebergs and even Vladivostok harbour is frozen, although it is farther south than Marseilles. Much of the interior is unexplored and is densely forested, so that the few settlements are coastal fishing villages. Until the Second World War the Japanese had concessions to fish the rivers for salmon which were canned and exported. It is known that the region is rich in minerals—copper, manganese, iron, etc.

The extreme north-east is inhabited by the backward Chukches, akin to the Eskimo. The Kamchatka Peninsula is sparsely populated by hunters and fishermen and there has been a certain amount of development of an oil-field on Sakhalin Island, formerly shared with Japan but now completely held by U.S.S.R. It is, however, only in the south-east that there has been any real progress. Lumbering and trapping are important there and agriculture (especially market-gardening) and cattle rearing have been commenced in the hinterland of Vladivostok, one important crop being sugar-beet and another soya beans. This port, in the extreme south-east corner, is the eastern terminus of the Trans-Siberian Railway, which has two lines of approach, the short one across Manchuria and the strategic one which makes the long detour around the boundary. It has important smelting works, shipyards, and cloth-mills. The only other towns of consequence are on the River Amur. They are Khabarovsk (200,000), railway bridge-town at the confluence of the Amur, Ussuri, and Sungari Rivers, and Komsomolsk, terminus of a branch line and centre of a modern steel industry and oil refineries (population 70,000). Nikolaevsk at the mouth of the Amur has shipyards, oil refineries, and food canneries.

The South-Western Soviets

In many ways the Soviets of the great south-western plain are the most interesting part of the Union for there has been more rapid progress here than elsewhere. People who were primitive nomads up to a few years ago, following their herds of horses, are now skilled agriculturalists and factory workers. Ancient centres of caravan routes like Tashkent and Samarkand are now industrial cities, whilst new towns like Stalinabad have

arisen in what was recently very sparsely-peopled mountain country.

The region is divided amongst several Soviets. Across the north of the area stretches the Kirghiz steppe, basis of the **Khazakh Soviet**. It is a region whose low and uncertain rainfall would only support a poor type of grass, but whose rich soil, with irrigation, is now being turned to good account. It was along this corridor of open grassland that various Mongol hordes of horsemen have passed from the Dzungarian Gate on the east to the Ural Gate on the west and so into Europe. For many generations the Khirghiz nomads

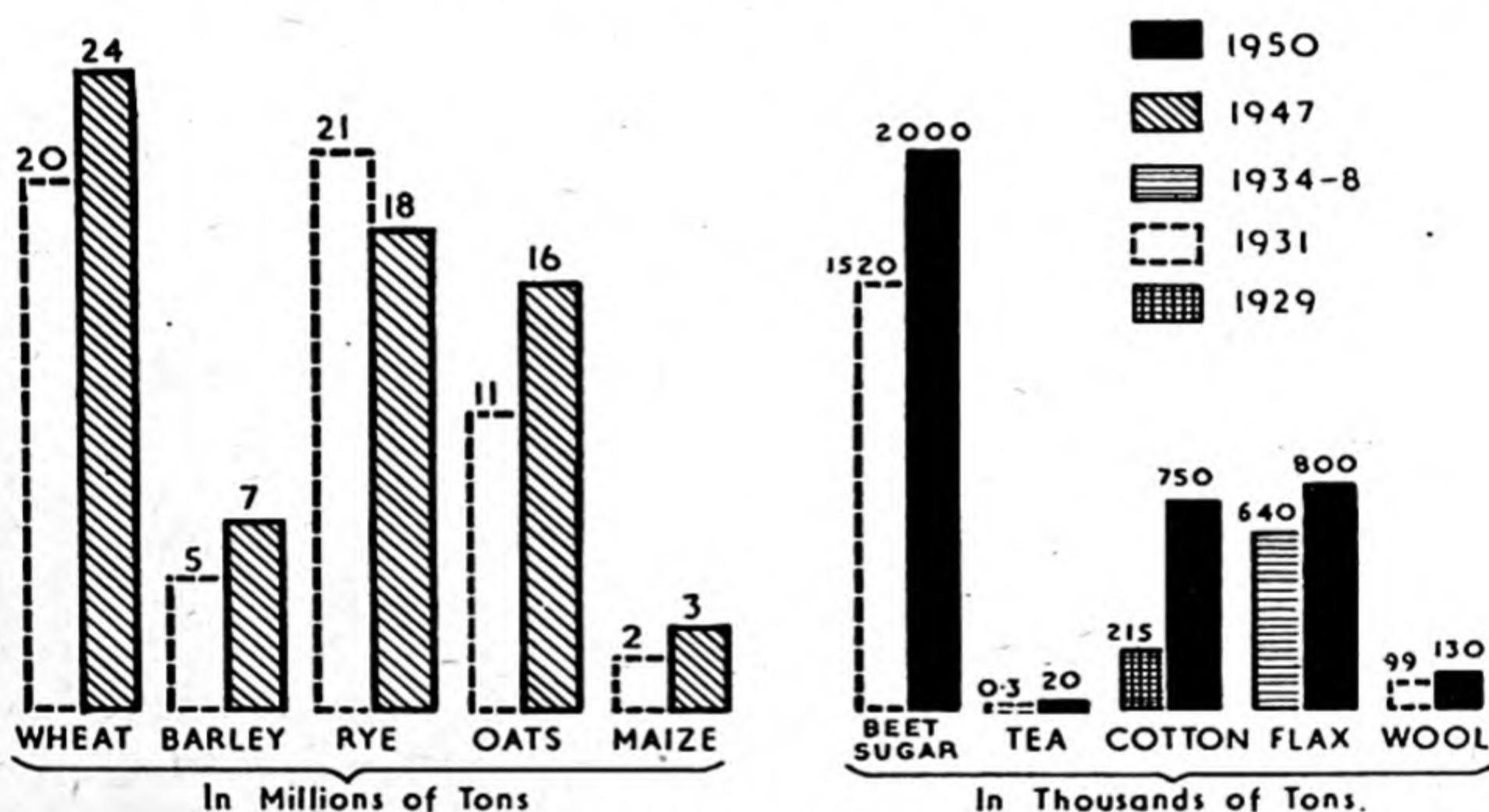


Fig. 45. CHANGES IN THE PRODUCTION OF THE CHIEF AGRICULTURAL CROPS IN U.S.S.R. (N.B.—The vertical scales of the above columns are not uniform.)

wandered with their horses from the lowlands in the spring up into the mountain pastures of the eastern edge, only to return to the lowlands in the autumn, an example of transhumance. Over much of the area nomads still wander with their yourts (black felt tents) and their horses and Bactrian dromedaries (two-humped camels), but the numbers of Astrakhan sheep have much increased. Kazakhstan is now one of the most important cattle-rearing regions of U.S.S.R., there being over 10 million head, which are kept in sheds and fed with silage during the cold winters. Many horses and goats are reared. Agriculture flourishes by means of irrigation. In the north

the chief crops are wheat, barley, and millet, and in the south cotton, sugar-beet, oil seeds, rice, and tobacco. Many drought-resisting crops have been introduced, *e.g.* kender, a plant grown for its fibre, and others which yield forms of rubber, one of the few products which cannot be obtained from within the borders of U.S.S.R. from established sources of supply. There is a danger of over-cultivation of the steppe, with consequent soil erosion and "man-made" deserts if "dry farming" is carried too far, as happened in many other areas of 8 in.-15 in. annual rainfall, *e.g.* the American "dust-bowl." The southern output has been achieved by damming the Syr Daria at Kyrly Orda, resulting in the irrigation of about 100,000 acres of rice, 750,000 acres of cotton, as well as much beet and grain.

Fishing is an important industry in the Caspian and Aral Seas as well as in Lake Balkash. This has led to the establishment of a canning industry.

Kazakhstan is rich in mineral wealth, mainly in its eastern mountainous area. The Karaganda coal-field yields about 4½ million tons annually. This is used by steel works, cotton-ginning mills, meat-packing factories, sugar refineries, tobacco factories, tanneries, and canning factories. The Soviet is the chief producer of non-ferrous metals in the Union and huge plants have been erected to deal with them, *e.g.* lead at Leninogorsk and Chimkent and copper at Kounrad (population 50,000) on the shores of Lake Balkash. There is an oil-field in the Emba River Basin north-east of the Caspian, and phosphates are produced for fertiliser. Other minerals are zinc, nickel, chrome ore, and molybdenum.

The capital is Alma Ata in the high south-eastern part, and has a population of 230,000 (*cf.* Portsmouth). Its name (Father of Apples) gives some indication of its garden city nature. Semipalatinsk is a bridge town on the Irtysh and has a meat-packing industry. Gusiev, situated at the mouth of the Ural River, has fish canneries. The chief fish caught in the Caspian is the sturgeon, famous for its roe, known as caviare, a great delicacy.

To the south of the Khirghiz steppe lies the semi-desert and desert area of Turkistan. There has been even greater agricultural development here because of the opportunities for

irrigation afforded by the more frequent rivers, particularly the Syr and Amu Darias draining into the Aral Sea.

Uzbekistan consists of the area extending from the western shores of the Aral Sea south-eastwards across the semi-desert plain of Kizil-Kum (Red Sands) to the foothills of the Tien Shan and Pamir Plateau. The southern upland area is dissected by the valleys of the Ferghana, Syr and Amu Darias, Zarevshan, and Chorchik rivers. These form the most

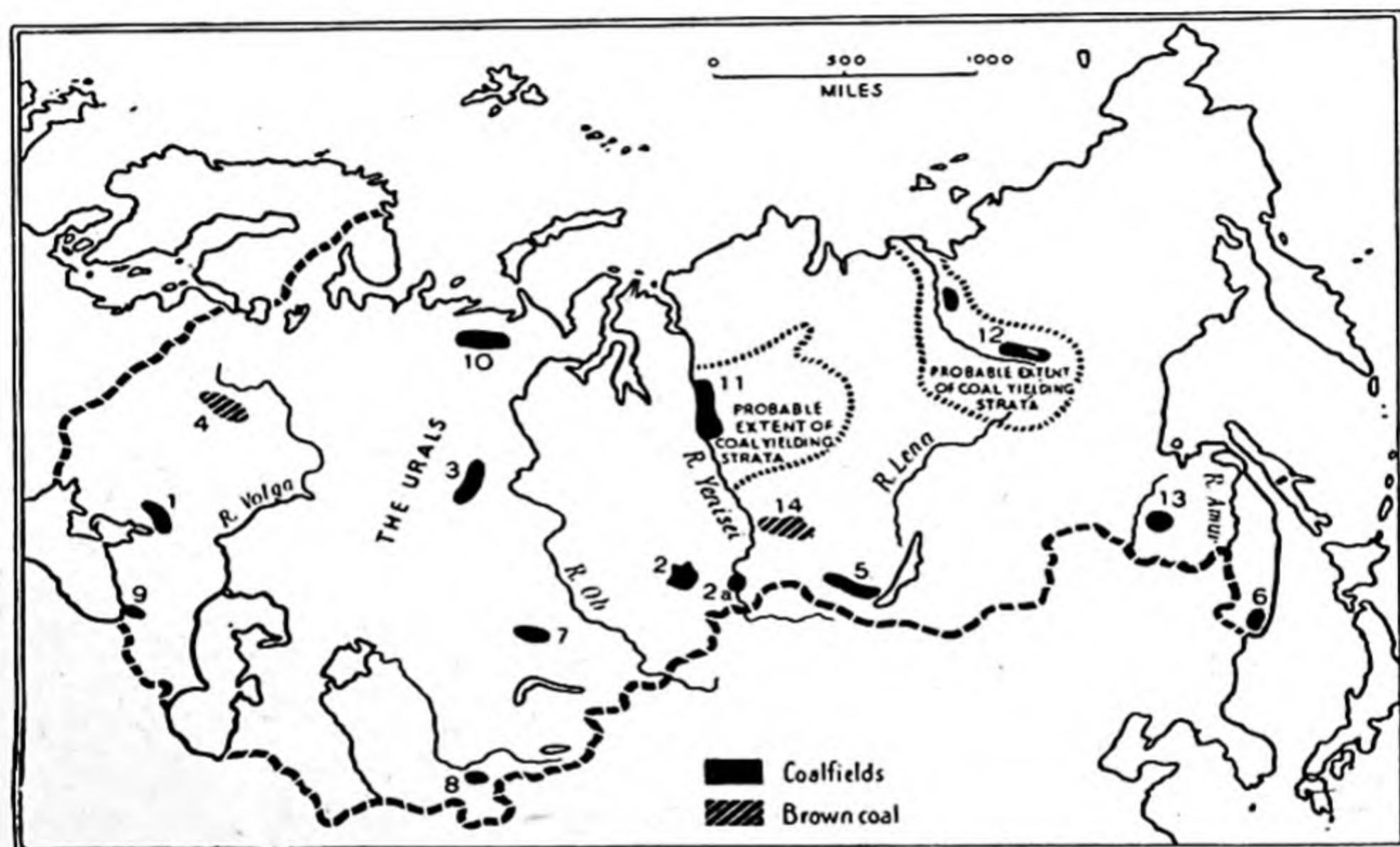


Fig. 46. THE COAL-FIELDS OF THE U.S.S.R.

The first nine are numbered in order of importance according to the 1934 output, the annual yield of the remaining five is at present low. 1. Donbas. 2. Kuzbas and 2a Minusinsk. 3. Ural. 4. Moscow (brown coal). 5. Irkutsk. 6. Far East. 7. Karaganda. 8. Central Asia. 9. Trans-caucasia. 10. Pechora. 11. Tunguz. 12. Yakut. 13. Bureinsk. 14. Kansk (brown coal).

sheltered and pleasant parts of the Soviet for they run mainly from east to west and are screened by the mountains from the cold north winds. The soil is fertile, consisting mainly of loess. Fruit growing is important, especially figs and pomegranates. Almonds are also widely grown. On the more open plains the Syr Daria is used to water some 5 million acres of land. The chief canal, the Great Stalin Ferghana Canal, completed in 1940, irrigates $1\frac{1}{4}$ million acres. The

chief crop is cotton, over 2½ million acres being devoted to it. The area produces 60 per cent. of U.S.S.R.'s crop. Incidentally, American negroes were brought in to instruct the Uzbeks in cotton cultivation. There has been a great deal of experimenting with tropical crops, *e.g.* guayale, a Mexican rubber-yielding plant. Other crops are—rice, sun-flowers (oil seeds), bast (fibre-yielding), sugar-beet, mulberry trees (silkworms). Vines are important, and Uzbekistan exports dried fruit (raisins, sultanas, apricots), canned fruit, and wine to other parts of the Union. Wheat growing has declined because the grain can be brought in by the "Turk-Sib" Railway, thus releasing the land for more suitable crops. Barley, maize, and wheat are grown on un-irrigated land on extensive lines with the aid of tractors and combine harvesters. Indeed, mechanisation has been widely adopted, even the cotton being picked by machinery.

Pastoral farming is important, there being over 6 million animals, mainly horses, cattle, sheep, and camels. Kara-Kalpakia, in the lowlands near the Aral Sea, is the chief wool producing region of the Soviets, the karakul (astrakhan) sheep being reared on the poor steppe.

Mineral wealth is obtained mainly from the upland areas, there being sulphur, oil, copper, and phosphates. Tashkent (population 600,000), once a noted caravan route centre, now capital of the Soviet, is situated on a spur of the Alexander Range in the east of the country. It has important agricultural machinery works as well as cement, sulphur, chemical, leather, cotton, and silk industries. It is in the midst of fertile oasis country and is surrounded by orchards and irrigated fields and meadows. Other old caravan centres are Bokhara and Samarkand, the latter a cotton spinning town.

The **Turkmen S.S.R.** stretches from Uzbekistan in the east to the Caspian in the west, and is bounded to the south by the Elburz and Hindu Kush, which divide it from Iran and Afghanistan. A large proportion of it consists of the Kara Kum (Black Sand) Desert. This desert is being developed for cattle rearing, for amongst the sands there are tracts of grass near surface water. In minerals it is also promising, because it has large deposits of soda, bromine, sulphur, potassium, salt, and sand for glass making, and gypsum. There is an oil-field near the east shore of the Caspian.

Irrigation has been developed and by its aid good crops of Egyptian-type cotton are grown. In September 1950, a much more ambitious scheme was announced to improve and extend irrigation in this area, and to create an inland waterway of about 700 miles, having the effect of linking the Turkmen S.S.R. with the centre of European Russia by water. The waterway is to be called the Turkmenian Canal and is to run from the Amu Darya to Krasnovodsk on the Caspian. From there barges will then proceed via the Volga system to Moscow. To raise sufficient water for the Canal a dam is to

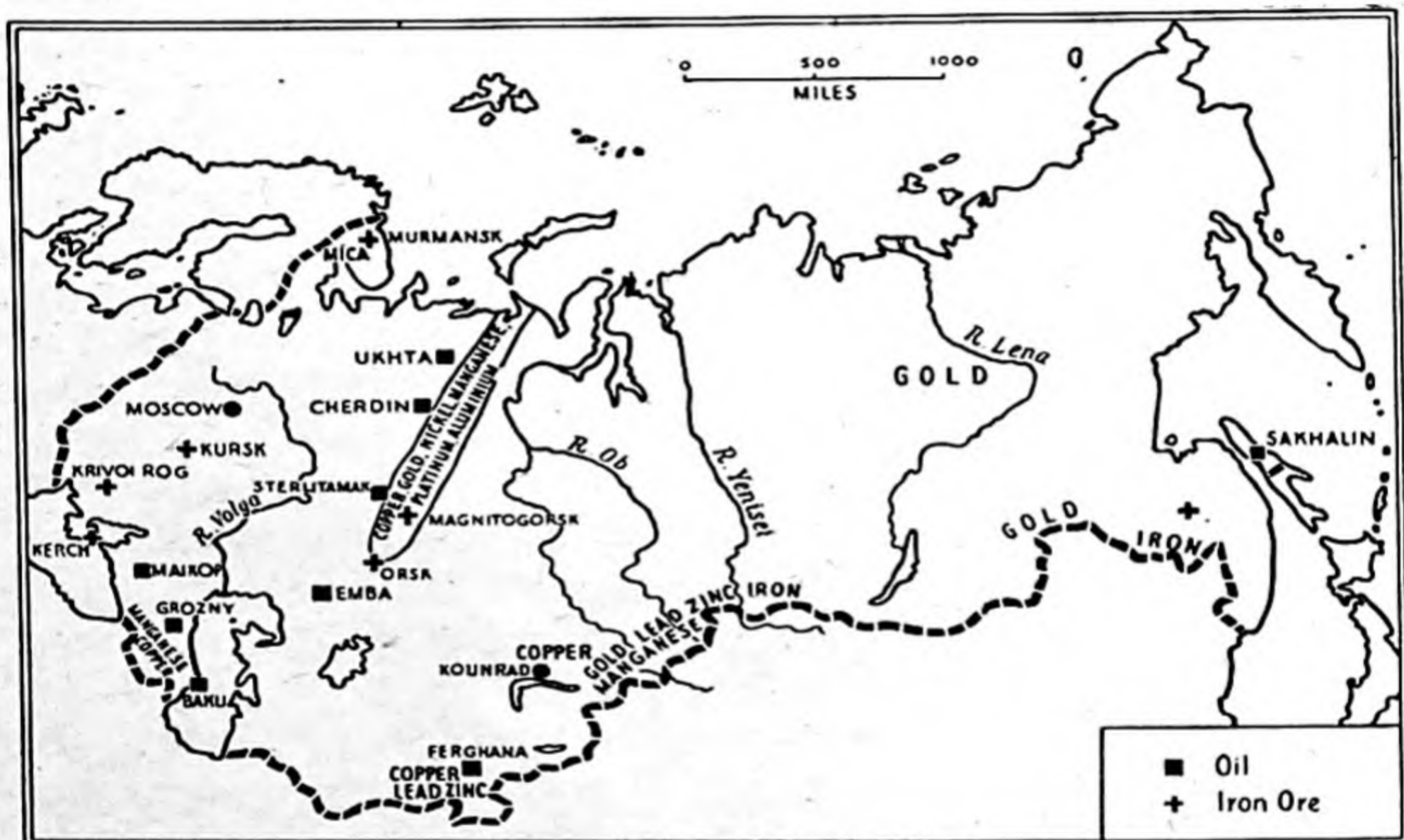


Fig. 47. U.S.S.R.—MINERALS OTHER THAN COAL.

be built at Takhya-Tash on the Volga. Not only will the scheme provide a new means of transporting goods in bulk, but also hydro-electric power will be generated for new industries, large areas of the hitherto useless Kara Kum will be irrigated principally for cotton and the pasture lands near the south of the Caspian will be greatly improved.

In the southern foothills there are many melons, vines, and fruits. Wheat is also grown, as well as ramie, a fibrous plant used to make artificial silk. Silkworms are fed on the mulberry leaves. Large numbers of karakul sheep are reared for

their good quality wool as well as horses noted for their speed and stamina. Raw materials have led to industrial development, *e.g.* cotton ginning, spinning and weaving, silk, meat-packing, leather goods, and glass-ware. Fishing is an important occupation on the Caspian shores, sturgeon, salmon, herring, and perch being caught. The industry is centred at Krasnovodsk, terminus of a railway linking the country with the "Turk-Sib" line at Tashkent.

The capital is Askhabad which, like those of the other neighbouring Soviets, is situated on the more developed and densely populated mountain fringe. It has a normal population of 127,000, but in October 1948 it was almost completely destroyed by earthquake, with resultant great loss of life. The ancient city of Merv is situated on an alluvial fan where the Murghab River loses itself in the sands, but creates an oasis of fertility.

Tajikistan, in the south-east, is a terraced country ascending to and including the highest part of the Pamir or "Roof of the World." The northern boundary is formed by the Altai Range, from which spurs run southwards. These are separated from each other by deeply eroded valleys of tributaries of the Amu Daria. Pastoral farming is very important, there being some 600,000 head of cattle and 2 million sheep and goats. Tajikistan rears the gissar breed of fat mutton sheep, largest in the world, as well as karakul wool sheep. In the lower parts of the valleys cotton and grapes are grown. The former, long-stapled Egyptian, is an important crop, grown under irrigation. A large dam has been built where the River Iraksh enters the plain. The reservoir irrigates 300,000 acres, mainly for cotton, but rice, apricots, mulberries, sweet melons, and vegetables are also grown. Under collective farming the Tajiks have much improved their standard of living, for they have a share in the profits. They use modern methods, *e.g.* sowing by mechanical drills, picking by machinery, and spraying the crops from aeroplanes. Power generated at the dam is used for the cotton cleaning machinery and for pressing oil from the seed. Another dam, 590 ft. high, on the River Worsob near Stalinabad is used chiefly for generating hydro-electricity. Nitrates for fertilisers are extracted from water and air; water is reduced to oxygen and hydrogen and the

latter is combined with nitrogen extracted from the atmosphere. Cane-sugar is grown in the extreme south, the only cane-sugar grown in the Union. The finest fruits of U.S.S.R. are also grown in this area, especially apricots and grapes. Other orchard products are apples, pomegranates, almonds, pistachio nuts, and walnuts.

Wheat and barley (some $1\frac{1}{2}$ million acres) are grown without irrigation, the latter at high altitudes. It is now being grown at a height of 10,000 ft. on the southward slopes of the Pamirs, where grapes are cultivated up to 6000 ft.

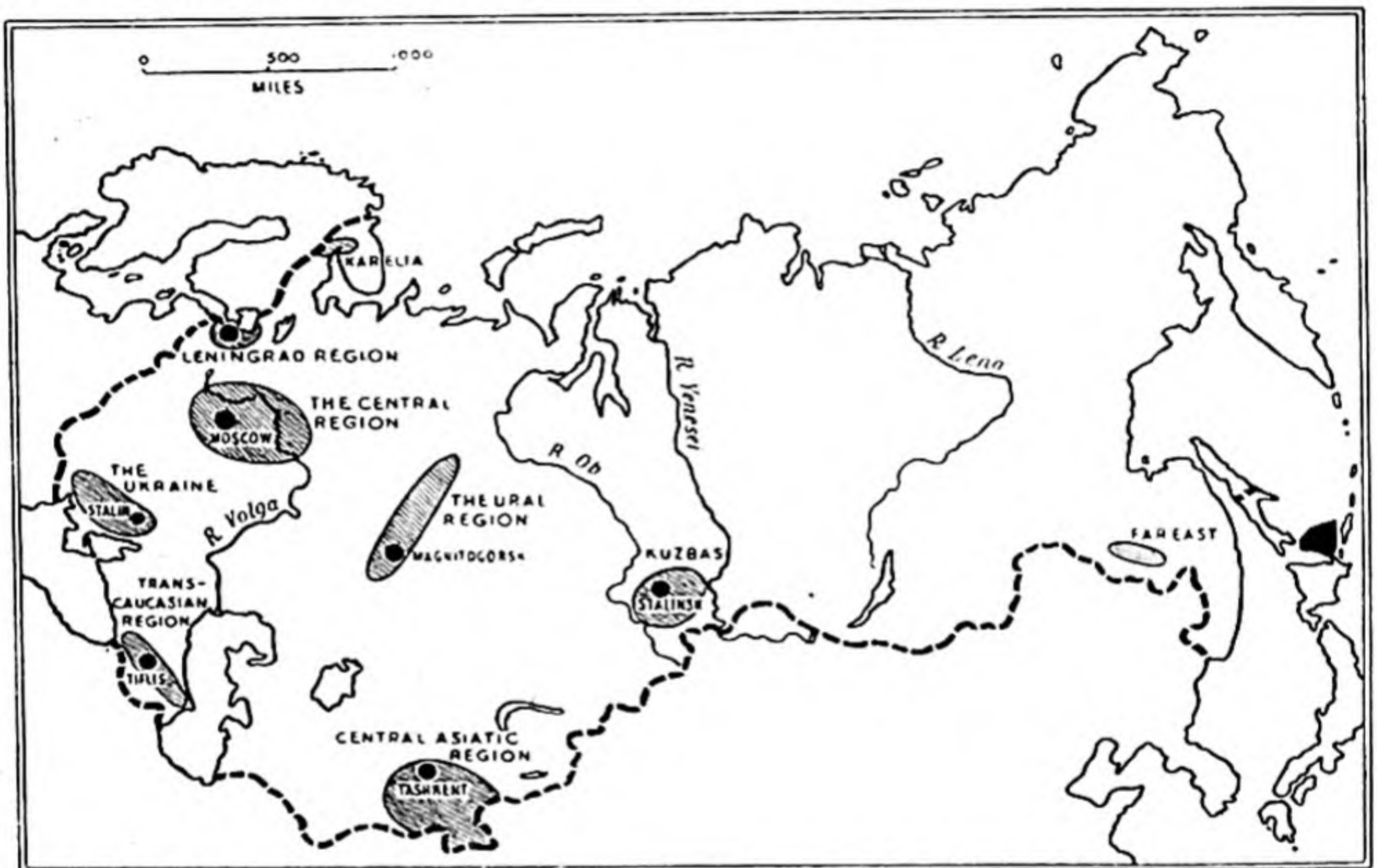


Fig. 48. THE INDUSTRIAL REGIONS OF U.S.S.R.

Mineral wealth is extensive. There are rich deposits of brown coal, useful for generating electricity, as well as petroleum, gold, lead, zinc, uranium, radium, arsenic, bismuth, asbestos, and mica. Many of these are as yet unexploited, but they have great potentialities and much progress has been made in mining during recent years. Textile, leather, and canning industries have been developed.

Perhaps the most interesting of all city developments in the Southern Soviets has been at Stalinabad, the capital. It is situated in a fertile valley on an inland delta and was, until a few years ago, a small market village called Dushambe,

or "Monday," after its market day. To it the local mountaineers brought karakul skins, silk, and carpets. In 1929 it was reached by the railway and became the capital of the Soviet, an area of 55,000 square miles with a population of $1\frac{1}{2}$ million. Its own population is 84,000. A railway links it with Termez.

To the north of Tajikistan lies another mountainous Soviet, **Khirghizia**, which borders to the east, Sinkiang. The mountains are part of the Tien Shan and enclose high plateaux, on one of which is the high lake Issuk-Kul. The highest parts are ice- and snow-covered, and on the northern-exposed slopes there are fir trees, contrasting with the walnuts of the sheltered southern slopes. The Khirghiz, a nomadic people, were declining in numbers until recent years. Most of the people, mainly Khirghiz but including others like the Dungans, live in the sheltered valleys of the north, *e.g.* the shorelands of Issuk-Kul, and the Ferghana valley of the south-west. Collective farming has turned the people from their nomad life to settled cultivators. The good soils of the valleys provide fine pastures for about 3 million head of stock, especially wool sheep. Irrigation has been extended to 2 million acres producing in the north sugar-beet, opium poppies, and tobacco and, in the south-west, cotton and rice. There are many apple-orchards in the north, contrasting with the sub-tropical apricots, vines, and mulberries of the south-west. Wheat and barley are grown without irrigation in the north and maize in the south-west. There is fishing on Issuk-Kul.

There is an important coal-field, and gold, sulphur, and petroleum are mined. Meat-packing, sugar-refining, cotton, woollen, and silk industries have been established.

The capital, Firenze, has had a similar recent history to that of Stalinabad. A few years ago it was a small primitive town, and now it is a well planned city with a population of over 92,000.

Enough has been said to show that it is in the open grasslands of the south-west and their mountain fringe, accessible to European Russia and with less severe climatic conditions, that most progress has been made. Apart from a belt along the Trans-Siberian Railway and its branches, the difficult forest and mountain areas of the north-east remain relatively undeveloped.

Airways in U.S.S.R.

The development of airlines in the Central Asiatic regions of U.S.S.R. has done much to open up the country and to bring into communication with each other areas separated by deserts or mountain ranges. Altogether there are about 160,000 miles of airlines in the whole of the U.S.S.R. including the longest trans-continental airway in the world, from Moscow to Vladivostok (5,000 miles). As an example of the value of airways in linking up difficult regions there is the line from Moscow to Anadyr, in North-Eastern Siberia, which carries passengers, mails, and freight for most of the year and calls at such isolated centres as Igarka. Indeed, Igarka and Yakutsk have developed into quite important airway junctions. Tashkent, Alma Ata, and Stalingrad are also linked with Moscow by passenger plane.

CHAPTER XIX

ECONOMIC GEOGRAPHY OF ASIA

In the foregoing chapters we have mentioned the main products of each country, but that does not give a comprehensive picture of the economic wealth of the continent as a whole. There are great differences in stages of development and in the organisation of the economic life in various parts of the vast area. In some regions, notably in the North-Eastern U.S.S.R., very little progress has been made from the hunting and collecting stage, whereas in South-Western U.S.S.R. the people have bounded in less than one generation from nomadic wanderers to scientific cultivators and factory workers. They have overtaken and even passed the peoples of the ancient civilisations of India and China, the great majority of whom are still leading the same type of life as their ancestors of centuries ago.

Let us now try to assess the relative importance of the countries from the economic point of view, taking the chief products in turn.

Wheat

The principal wheat-growing countries are U.S.S.R., China, India, and Pakistan. In the former the chief region is the steppe-land belt along the line of the Trans-Siberian Railway between the Urals and Semipalatinsk. Here spring wheat is sown after the snows have melted and the wheat germinates quickly in the moist soil, being helped by fairly frequent showers, and being nourished by the rich humus-laden black earth. This area helps Russia very greatly to achieve the position of world's greatest wheat grower, for it is second only to the Ukraine in the whole of U.S.S.R.

In India the wheat is sown towards the end of the rainy summer monsoon (September) and is cut in January. Irrigation water is used to fill out the grain in the later stages.



Above: CEYLON. A COCONUT ESTATE. (Topical Press Agency.)
Below: CEYLON. TAPPING RUBBER TREES. (Exclusive News Agency.)



BURMA TEAK INDUSTRY.

Above: ELEPHANTS STACKING LOGS. (Exclusive News Agency.)
Below: ROLLING LOGS DOWN A CHUTE TO THE RIVER. (Fox Photos.)

Other important wheat lands are China (in the Lower Yangtse and Hwang Ho Basins) and Manchuria.

WHEAT: TABLE OF AVERAGE PRODUCTION
(MILLIONS OF TONS)

Russia (including European)	..	..	25
China	..	..	24
India	..	..	6
Pakistan	..	..	4
Turkey	..	..	4
Japan	..	..	1

Rice

Rice is the outstanding crop of the monsoon lands. In the early stages of its growth it must be under water. The seeds

RICE PRODUCERS



COTTON PRODUCERS



Fig. 49.

are sown in flooded fields and, when about six weeks old, the plants are transplanted. After a time the water is drained off and the grain ripens. On the lowlands irrigation is used, but on terraced hillsides rice requires over 60 in. of rainfall. In the East Indies, with double rainfall maximum, two crops a year may be grown. The chief producers are China, India, Japan, Burma, Siam, and Indo-China. Of these, China, India, and Japan need all the rice they can grow and, indeed, have to import some to feed their enormous populations. The others have surpluses for export. A comparatively new arrival on the list of rice growers is U.S.S.R., which is producing considerable quantities by irrigation in the Sea of Aral region.

CHIEF RICE GROWERS: TABLE OF AVERAGE PRODUCTION
(MILLIONS OF TONS)

China	46	Indonesia	7
India	30	Indo-China	5
Pakistan	12	Burma	5
Japan	11	Siam	5

Burma, Siam, and Formosa are the chief exporting countries, and India, Malaya, Indonesia, and Ceylon, the chief importing ones.

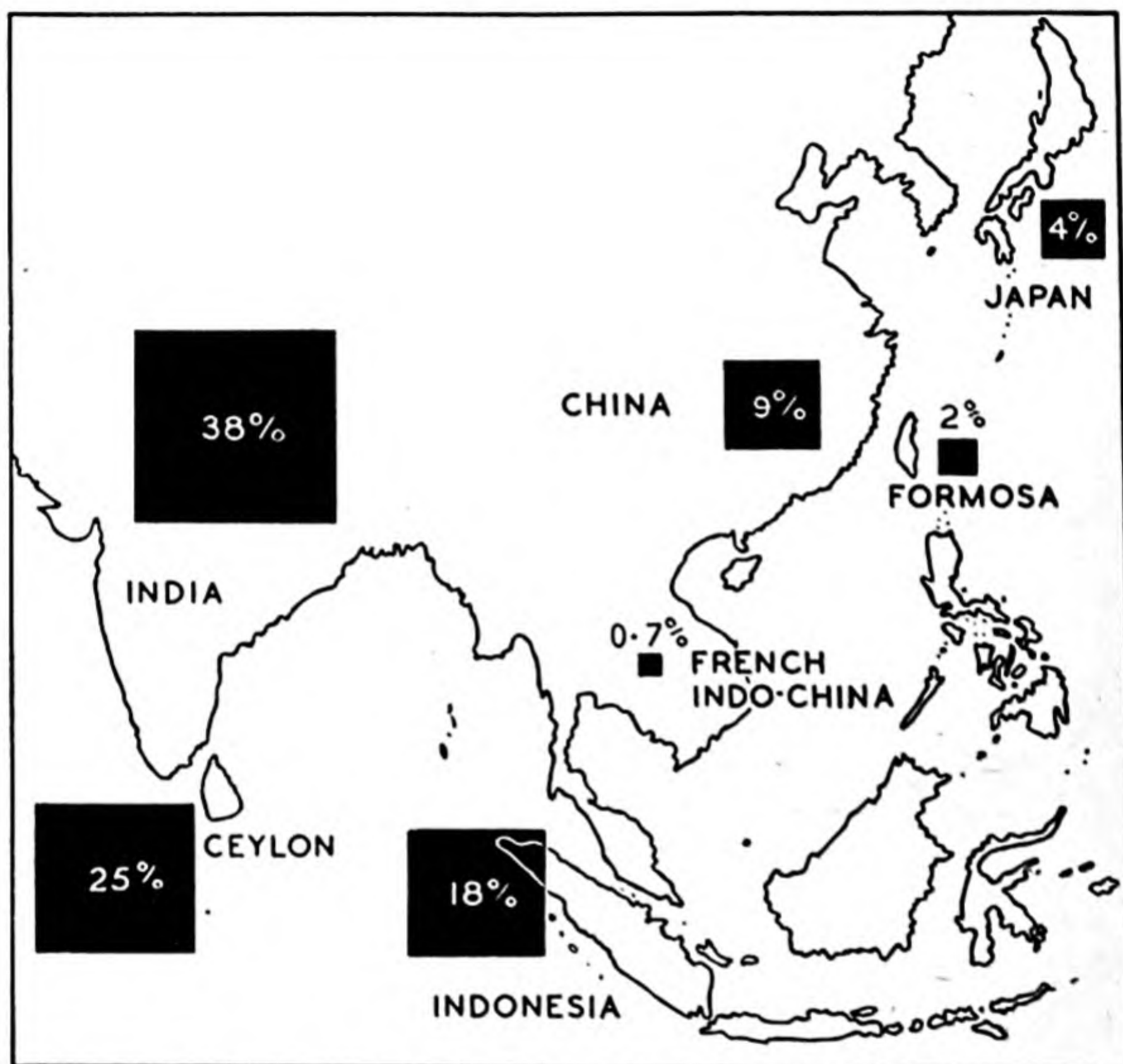


Fig. 50. THE WORLD'S CHIEF EXPORTERS OF TEA.

Tea

The tea plant, a leafy bush, is most probably a native of China. It requires plenty of rainfall in summer with high temperatures, but it stands up to cold winters. It is grown on hill slopes for it requires good drainage. China is the greatest producer, not only for home use, but also for a fairly considerable export trade to Russia by overland routes. The leaf varies in size and quality according to the climatic conditions under which it is grown; thus in the Equatorial

rain belt of the East Indies the leaves are very coarse. Tea seed oil is now being exported from India to be used as a substitute for olive oil.

TEA: TABLE OF AVERAGE PRODUCTION
(THOUSANDS OF TONS)

China	300-500	Japan	30
India	250	U.S.S.R.	20
Indonesia	200	Pakistan	20
Ceylon	150		

India and Ceylon are by far the largest exporters.

Rubber

Although the hevea tree, whose latex yields para rubber, is a native of the Amazon lowlands, well over 95 per cent. of the world's rubber is obtained from South-East Asia, where the conditions are ideal. By far the most important producers are Indonesia and Malaya. The weakness of the industry, the tendency to over-produce, thus lowering the price below an economic level, has again become apparent. Great efforts have restored the war-damaged plantations because rubber is a great "dollar-earner." U.S.A., the chief user of motor-transport, is the main importer, but during the 1939-45 war she built up a synthetic rubber industry which she is reluctant to give up, fearing that supplies of natural rubber may be once again cut off.

PRODUCTION OF NATURAL RUBBER, 1951
(THOUSANDS OF TONS)

Indonesia	739	Ceylon	103
Malaya	608	North Borneo	72
Thailand	108	Indo-China	53

Cotton

Providing sufficient moisture can be obtained from irrigation, cotton can be successfully grown in any country with high summer temperatures, an average of two hundred days freedom from frost, and a rich heavy soil. Indeed, better quality cotton is grown on the average in dry areas using irrigation than in those which rely on rainfall. Most Asiatic cotton is grown with the aid of irrigation, with the exception of the low grade variety produced in the Western Deccan.

The chief growers are China, India, Pakistan, and Soviet Russia. U.S.S.R. is now self-supporting in raw cotton.

COTTON PRODUCTION, 1950-1

(THOUSANDS OF TONS)

U.S.S.R....	..	..	..	750
India ..	..	..	..	510
China ..	..	..	..	680
Pakistan ..	..	..	..	200

Sugar

Most of the sugar grown in Asia comes from the sugarcane and is therefore obtained mainly in the south-eastern countries. India is the world's second largest producer but her output is all needed by her own population. The chief Asiatic exporters of sugar are the Philippines, Taiwan, and Indonesia.

SUGAR PRODUCTION, 1950-1

(THOUSANDS OF TONS)

India ..	..	..	3,300	Indonesia ..	..	..	550
Philippines ..	..	..	880	Taiwan..	..	..	400
Pakistan ..	..	..	690	China ..	..	..	390

MINERAL WEALTH

Petroleum

Mineral oil is usually found on the flanks of fold systems so that, although Asia is not yet the greatest producer, it has the greatest possibilities of future development.

The greatest output comes from U.S.S.R., but much of its 42 million tons is produced on the northern side of the Caucasus and in Trans-Caucasia, both of which are counted as European, whilst the new Ural oil-field, most promising of the later developments, is on the western side. Other relatively new producers are round Emba, north of the Caspian, and at Neftedag on its eastern shore. Oil is also being mined in Sakhalin and in Ferghana. There are great possibilities along the Arctic shores.

Of the purely Asiatic producers, Persia, with an annual production of over 30 million tons, was until recently the most important. During 1951, however, this output has been surpassed by each of two very new oil-fields in the Persian

Gulf area, Kuwait, in the north, and the Saudi Arabian oil-field, on the mainland near the Bahrein Islands. Both of these are under American control. This American interest is caused by their concern at decreasing production in the homeland. A 30-inch pipe line has been constructed from Dahrán near Bahrein to Sidon, on the coast of Lebanon (over 1,000 miles). Another pipe line is projected from Abadan in Persia to Tartus, north of Tripoli. The object of these pipe lines is to save the cost of maintaining fleets of tankers to bring oil from the Persian Gulf to the Mediterranean through the Suez Canal, with its high tolls. It is estimated that the pipe line from Dahrán to Sidon, when fully working, will save the use of sixty oil-tankers.

Other Asiatic oil-fields include Iraq, output nearly 8 million tons a year in 1951 and expected to increase to 30 million tons within five years, Indonesia (7 million tons), Brunei (5 million tons), Burma (1.5 million tons), and the Bahrein Islands.

Coal

China is considered to be the country with the greatest coal reserves in the world, but at present its output is lower than those of Asiatic Soviet Russia (60 million tons) and India (35 million tons). Other coal-fields are in Japan (42 million tons), Manchuria (13 million tons), Turkey (4 million tons), Korea (2.5 million tons), and Indonesia (0.5 million tons).

Iron

Most of Russia's 35 million tons of iron ore is mined in Europe, but the Telbes output is increasing rapidly and there are new fields near Komsomolsk on the Lower Amur. India has an output of 3 million tons, chiefly from the North-East Deccan, Korea of 1 million tons, and Manchuria of 2 million tons. Again, China has enormous reserves, but these have hardly been touched except in the Hankow area.

Tin

Here, as in rubber production, the Malaya-East Indian region easily leads the world, producing over 50 per cent. of the total. Most of the tin is dredged from the rivers (alluvial mining), so that there must be large reserves waiting to be

mined in the native rock. Malaya yields about 58,000 tons and the East Indies about 33,000 tons of tin ore, most of which is sent to Singapore for smelting. Other tin producing areas are Siam, Indo-China, and Burma.

Gold

By far the chief producer is U.S.S.R., second only to the Union of South Africa in the world. The principal field is that of the Lena Basin, but gold is also mined in the Central Asiatic Highlands. Other gold mining countries are India, Annam, Korea, Manchuria, and China.

Summary

Since 1939 the economic geography of Asia has undergone many profound changes. Rapidly increasing population combined with the ravaging effects of international and civil war has meant that, with the notable exception of petroleum in the Middle East, the continent has had less to offer the rest of the world. Indeed, even the development of the petroleum industry has been hindered by the troubles in Israel so that work on new pipe lines has been held up.

The effect of increasing population may be judged by a comparison of the figures for 1938 and 1950:—

	1938	1950
INDIA AND PAKISTAN	370,000,000	432,000,000
JAPAN	71,000,000	83,200,000
KOREA	22,000,000	29,300,000
PHILIPPINES	16,000,000	19,500,000

In these countries alone there has been in twelve years an increase of 85 million mouths to feed and bodies to clothe.

QUESTIONS

1. When it is 9 p.m. in London what time is it in Merv, Tomsk, Yakutsk, Vladivostok?
2. Write an essay on Fold Mountains, taking your examples from Asia. Illustrate by diagrams or maps.
3. Write notes on—mountain knots, massifs, syncline, sedimentaries, volcanoes. Take examples from Asia and draw diagrams.
4. Describe in detail the Pacific coastline of Asia and show how this is related to the relief and structure.
5. Classify the lakes of Asia according to their mode of origin and give the chief characteristics of each type.
6. What is meant by the beheading of rivers? How many examples can you find on the map of Asia?
7. Write a detailed account of the Indian Ocean coastline on the lines of Question 4.
8. Describe the courses of (a) the Ob, (b) the Indus, (c) the Yangtse-Kiang.
9. Compare the Arctic Ocean coastline with those of the Pacific and Indian Oceans, and account for any differences in their characteristics.
10. Name the chief "controls" which affect the climate of Asia and show how they affect it.
11. Study (a) the winter rainfall, (b) the summer rainfall maps of Asia. Note the pressure and winds and try to show how these affect the distribution and amount of rainfall.
12. Study the annual and seasonal rainfall maps together with that showing relief, and show what effects the latter has upon the rainfall.
13. Making use of all available maps and the climatic statistics, compare and contrast the climates of the monsoon lands and the Japanese Archipelago.
14. On a map of Asia draw the January and July isotherms taken from an atlas. Where the former cut the latter note the difference of temperatures. Then on another map mark the points of intersection by dots and insert the range of temperature at each point. Use these to draw lines joining places of equal range of temperature, e.g. 10°, 20°, 40°, etc. What do you learn from this map?
15. Selecting one station from each climatic region and using the rainfall statistics, draw columns to represent in each case the December, January, February; March, April, May; June, July, August; September, October, November rainfalls. Point out any special features of the seasonal rainfalls that you may notice.
16. Study the climatic statistics for places in the monsoon areas. Account for the differences that you notice. Be on the lookout, not merely for differences in summer and winter temperatures or total

rainfalls, but also for minor points, *e.g.* month of maximum temperature or rainfall.

17. Compare and contrast the climates of the Iran, Turan, and East Mediterranean Type.

18. Describe the relief, climate, and natural vegetation that would be met with on a journey along a line drawn from Cape Comorin to East Cape, (a) in summer, (b) in winter.

19. Carry out a similar exercise with reference to a journey along lat. 40° N.

20. By referring to examples from Asia show how natural vegetation adapts itself to climate.

21. Write an essay on irrigation, taking examples from Asia.

22. Draw a section across Arabia from Aden to Kuwait using the largest scale map in your atlas.

23. Compare and contrast the islands of Cyprus and Ceylon under the headings: (a) Relief and Structure, (b) Climate, (c) Natural Vegetation, (d) Economic Products.

24. Write an account of the distribution of population of Palestine and show how it is related to the relief.

25. Draw a map of Syria showing relief and railways and show how the latter are influenced by the former.

26. Describe the development of the petroleum mining industry of the Middle East and show how the oil is conveyed to the ports.

27. Describe the positions and account for the importance of: Damascus, Haifa, Jerusalem, Baghdad. Illustrate by maps.

28. Write an account of the economic geography of Iraq.

29. Compare and contrast the economic geography of Turkey and Iran and give reasons for your statements.

30. Describe the fruit-growing industry of the Middle Eastern countries.

31. Draw a section across Iran from Bandar Shah to Bandar Abbas. Describe the relief, climate, and natural vegetation that would be met with on a journey along the line of the section.

32. Compare and contrast the basins of the Indus and Ganges under the headings Relief, Climate, and Economic Development.

33. Using the material provided in this book write a geography of Pakistan, illustrating by maps.

34. Carry out a similar exercise for the Dominion of India.

35. Discuss the merits and demerits of Karachi as capital of Pakistan. Select any other site which you think might provide a more suitable capital and give reasons.

36. Compare and contrast the positions and importance of Madras, Bombay and Calcutta.

37. Describe and account for the distribution of population in the Indian sub-continent.

38. Write a geographical account of the State of Hyderabad.
39. Draw a map of the main railway system of the Indian sub-continent and write a description of the network, bringing out the influence of relief.
40. Write an account of the economic geography of Burma.
41. Draw a section across Burma along the latitude of Mandalay. Describe the relief as shown by the section.
42. Examine the photographs of the Burmese teak industry and write a description of the features noticed.
43. Compare the deltas of the Indus, Ganges, and Irrawaddy, from as many points of view as you can.
44. Why are Singapore, Colombo and Aden such important shipping centres? Draw maps to illustrate your answer.
45. Summarise the economic geography of the Malay Peninsula.
46. Compare and contrast the islands of Borneo and Formosa.
47. Write a geographical account of the Indonesian Republic.
48. Give an account of the rice-growing industry of Asia, finding as much data as you can from photographs.
49. Examine the photographs of racial types and note any features distinguishing the various races from each other.
50. Give a reasoned account of the distribution of population of the Malayan and East Indian area.
51. Describe the positions and account for the importance of Bangkok, Hanoi, Jakarta. Illustrate by sketch maps.
52. Taking the River Yangtse as the dividing line, compare and contrast Northern and Southern China.
53. Draw a map of China inserting the rivers and large towns. Comment upon the distribution of the latter.
54. Draw a section along the course of the Hwang-Ho. What can be learned from it?
55. Write a detailed description of the coastline of China.
56. Write a geographical account of the island of Honshiu.
57. Describe and account for the distribution of population of Japan.
58. What was the economic importance of her former territories—Korea, Manchuria, and Formosa—to Japan?
59. Divide Manchuria into regions and write an account of each.
60. Write an account of a journey across Asia along the Trans-Siberian Railway involving a description of the relief, vegetation, and economic development.
61. Draw a map of U.S.S.R. and mark and shade on it the regions of natural vegetation. Describe the influences of relief and climate upon the distribution of these regions.

62. With what difficulties have the Russians had to contend in the development of the Tundra and what steps have they taken to overcome these difficulties?

63. Give an account of the relative importance of the various coal-fields of Asiatic Russia and mention the industrial development which has taken place in each case.

64. Contrast the conditions which prevailed in the Asiatic steppe-lands of Tsarist times with those of to-day.

65. On a map of Asiatic U.S.S.R. mark and name the chief towns. Comment, with reasons, upon their distribution and write short notes upon the importance of each.

66. Write notes on Kuro Siwo, seed pearls, fish-traps, trans-humance, yourts.

67. Contrast life on a tea plantation in Ceylon with that on a collective farm in Uzbekistan.

68. Why are we justified in calling Asia the "Continent of the future"?

69. What changes in the political geography of Asia have taken place since 1939?

70. It is possible to learn much about the geography of an area by an intelligent study of photographs. Use those contained within this book to show that this is a true statement.

71. The same is even truer of maps. Draw a series of maps of India on the same scale as follows: relief (on drawing paper); on tracing paper—rivers, summer rainfall and winds, winter rainfall and winds, natural vegetation, economic products, railways, distribution of population. By transposing them in as many ways as possible bring out the effects of the various phenomena upon each other and write down the results of your observations.

72. Carry out a similar exercise for China.

73. Draw a map of Ceylon showing the distribution of crops. Show how this distribution is affected by relief and climate.

74. Carry out a similar exercise for Burma.

75. Compare and contrast the geographical conditions of the Philippines with those of the Japanese Archipelago.

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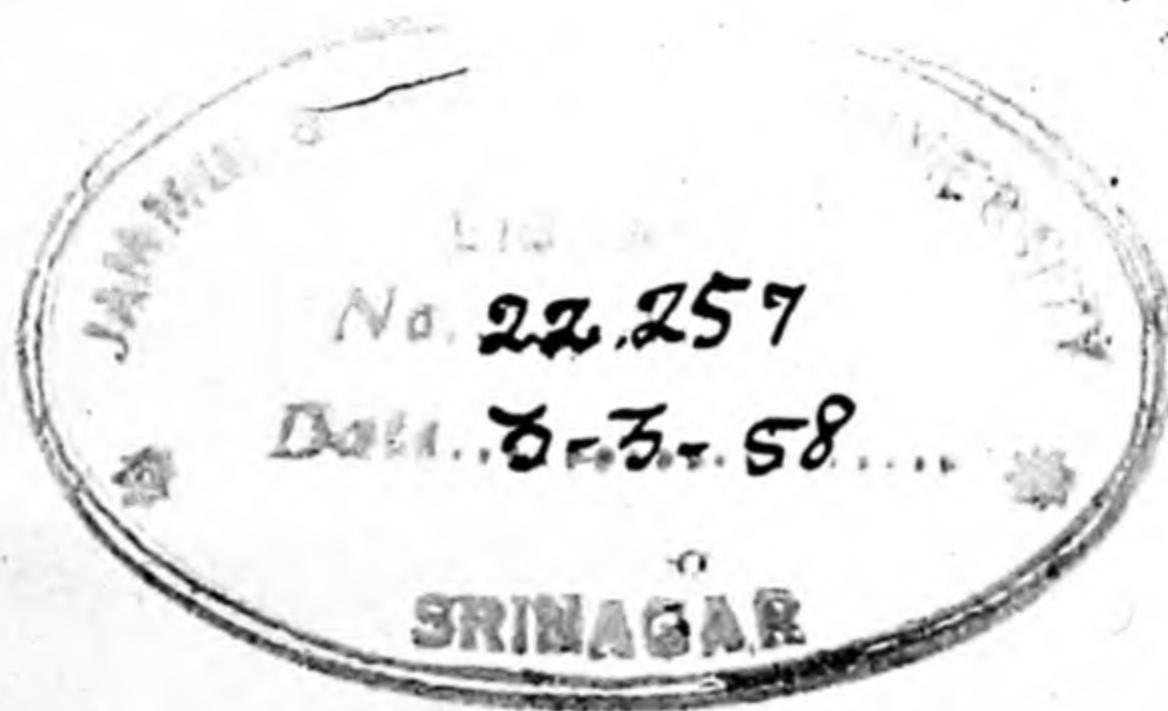
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